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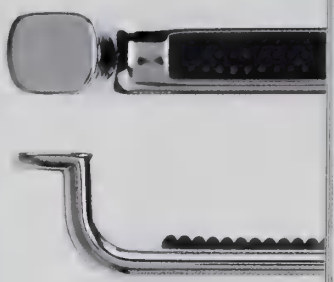
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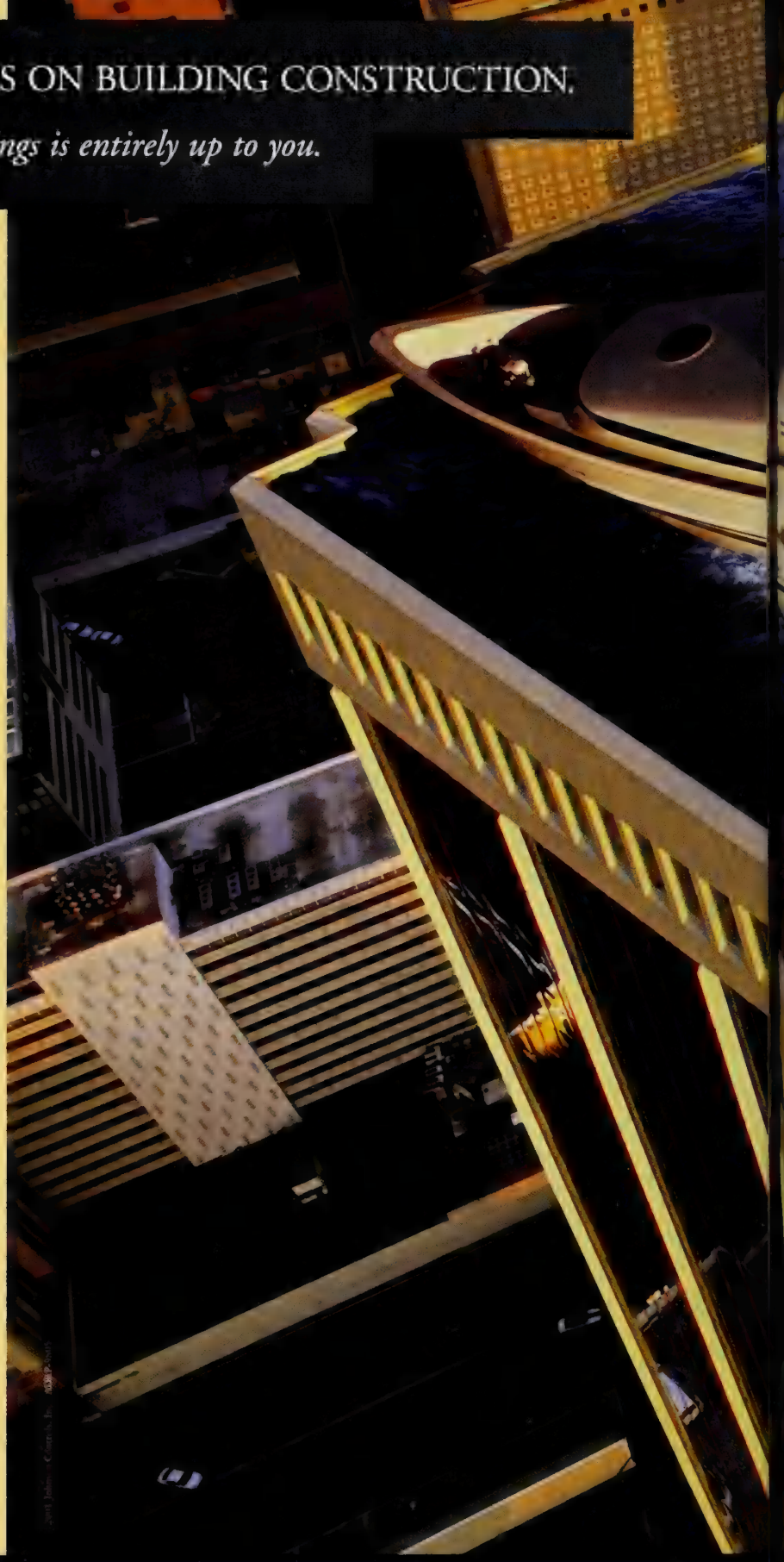
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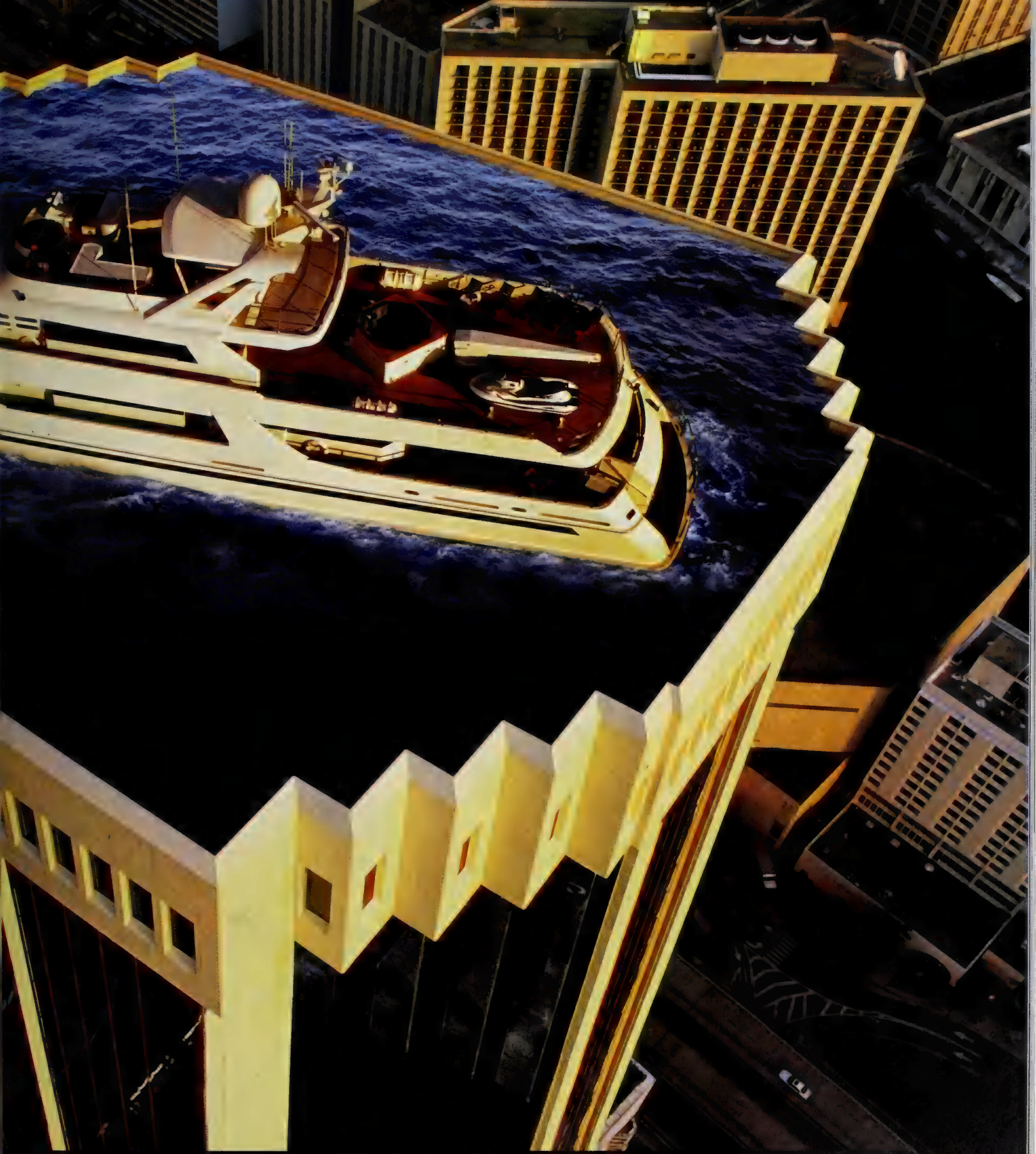
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On the Cover: *Pod, Brooklyn, N.Y., by Leeser Architecture. Photograph by Matthu Placek.*
Right: *Parsons Kitchen companion pieces, by Allan Wexler. Photograph by James D'Addio.* ►

News

33 Architectural community rallies for TWA terminal
36 Protesting Gehry

Departments

21 Editorial: Seeing is believing
27 Letters*
53 Dates & Events*
59 Archrecord2: The emerging architect*
65 Correspondent's File: Saint Paul, Minnesota *by Bette Hammel*
69 Critique: Vedic City *by Michael Sorkin*
75 Practice Matters: Values-based firms *by Paul Jorgensen, AIA**
79 Books: Mies is back *by Stanley Abercrombie, FAIA*
83 Snapshot: Quarry dwelling *by Soren Larson*
256 Profile: Pascale Girardin *by Ingrid Whitehead**

Features

90 Room-In-A-Box *by Elisheva Levi*
Compact, folding, and flexible interiors give new meaning to the phrase, "living out of a suitcase."

100 The Big Blue Yonder *by Michael Speaks*
New models for business and the design process emerge through the creation of IBM's e-business innovation centers.

Building Types Study 801

113 Record Interiors Intro *by Sarah Amelar**

114 Qiora Store and Spa, *New York* *by Sarah Amelar**
Architectural Research Office
Ethereal veils wrap the interior of this day spa and store.

120 Bartlett Pennington House, *Australia* *by David Clark**
Burley Katon Halliday
A glass pathway leads through an unexpected spacial sequence in an expanded 19th-Century cottage.

128 Mandarina Duck, *Paris* *by Claire Downey**
NL Architects
A Paris shop becomes a venue for playful merchandise display.

134 Glass, Bot, Pod, *New York* *by Cynthia Davidson**
Leeser Architecture
A trio of New York City establishments aspires to launch restaurant and bar design into the future.

142 Michael Schrom & Company Studios, *New York*
*by Clifford A. Pearson**
Hanrahan Meyers Architects
Raw industrial space becomes a hip office and TV studio.

148 Electric Sun III, *California* *by David Hay**
Escher GuneWardena Architecture
Vivid graphic panels add glamour and luxury to a strip-mall tanning salon.

For 10 additional interiors projects go to Building Types Study at ***www.architecturalrecord.com.*** The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

Building Science & Technology

163 Public Musings on Acoustical Privacy
*by Michael Chusid**
In offices, it's sometimes what you don't hear that matters.

Digital Practice

193 Introduction
195 Digital briefs *by Deborah Snoonian, P.E.**
197 Digital Architect *by Jerry Laiserin, FAIA**
200 Digital Pedagogy: An Essay *by Dana Cuff**
One educator expresses her thoughts on design software's profound effects on architectural thinking and teaching.
211 Software Reviews *by Jerry Laiserin, FAIA**

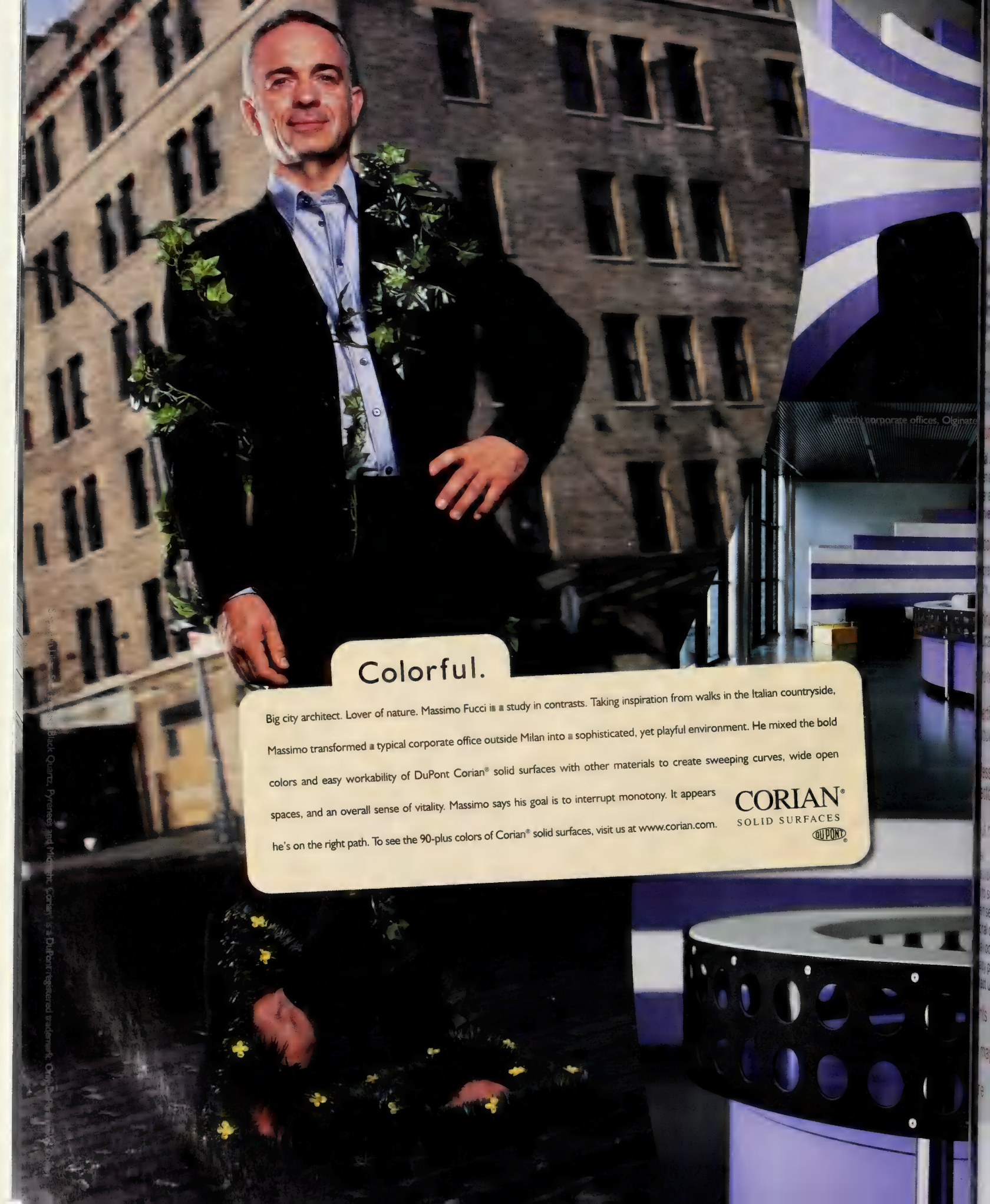
Products

215 Interior Finishes
227 Product Briefs
232 SIDIM Review
234 Product Literature

15 What's at architecturalrecord.com
240 Reader Service*
246 Manufacturers' Spotlight
253 Classified Advertising*
244 AIA/CES Self-Report Form*

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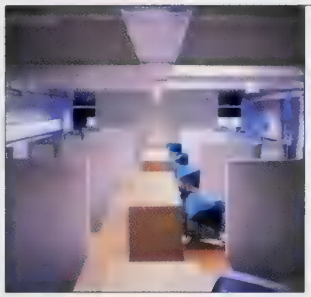


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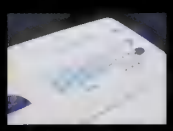




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Inside Information. Design Inspiration.

A simple click transports you to ten intriguing restaurants, stores, offices, studios, libraries, residences and more in September's Record Interiors **Expanded Building Types Study** section – found only on *Architecturalrecord.com*. That's in addition to the *Record Interiors* projects featured in this issue and on the web.

In addition to the dramatic interiors above, other projects include offices for Global Crossing by Lee H. Skolnick; Temples of Industry by Randy Brown Architects; and Duffy Design offices in New York by MAP. Get on the inside track with informative descriptions, plans, specs, photos and links to key people and products involved in each interior project.

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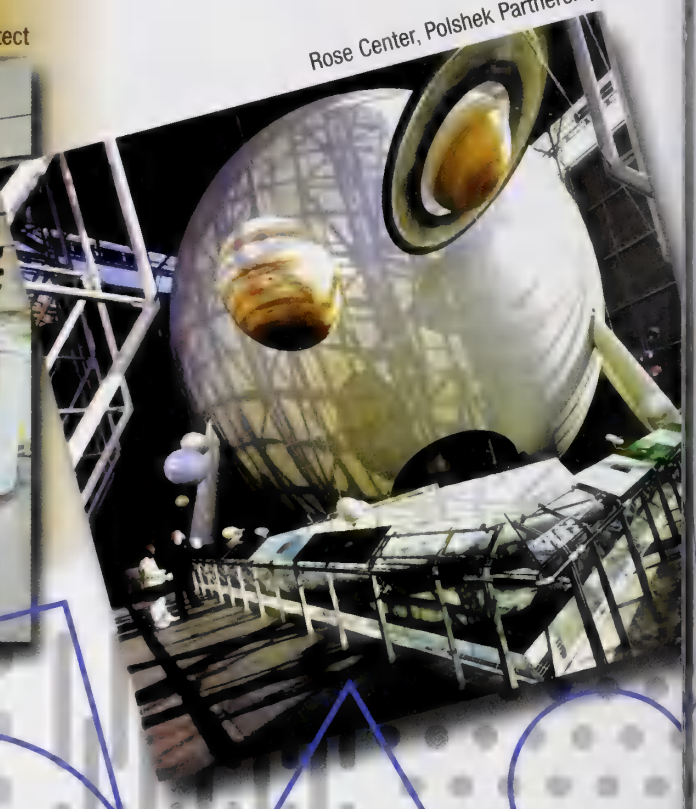
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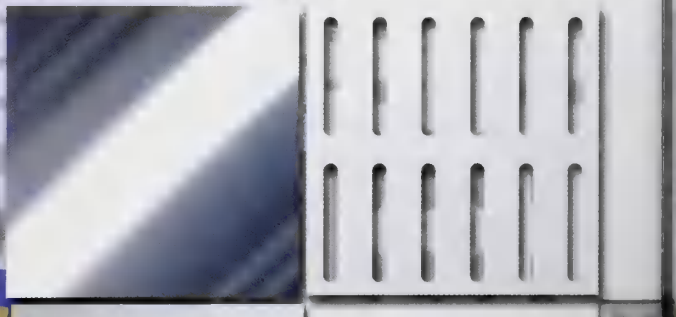


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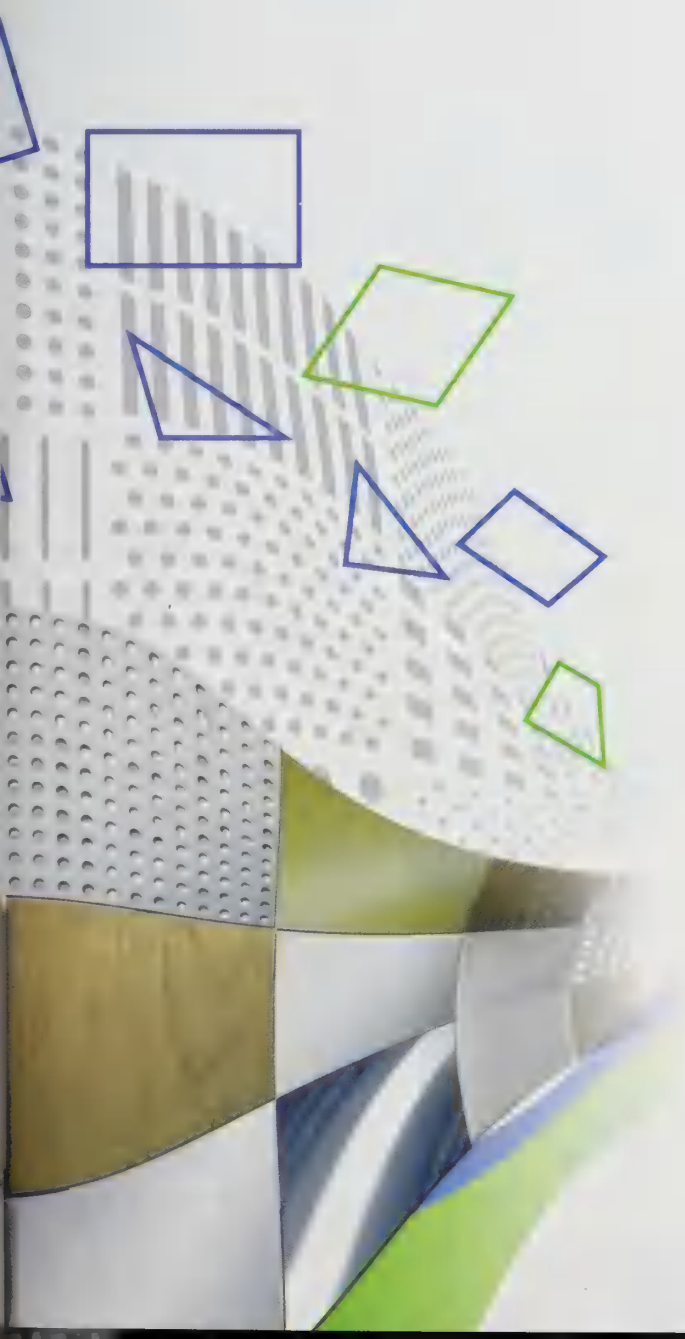






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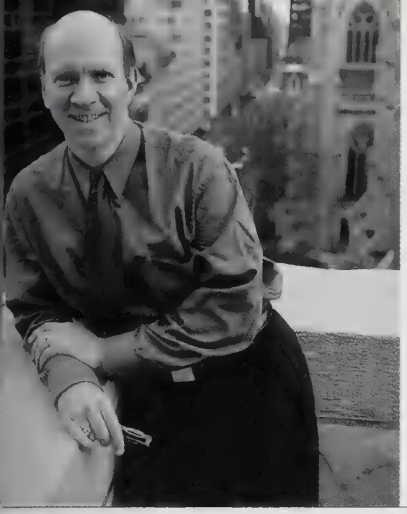
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CIRCLE 10 ON INQUIRY CARD



Seeing is believing

Editorial

By Robert Ivy, FAIA

Architects beware: Photographs can lie. You already knew it, but it's worth repeating, since what appears in print may not be backed up by experience. Despite the beautiful photographic images this magazine and its international peers offer each month, you have to see architecture for yourself to catch its essence. That fact came crashing home this August on a trip scouting for ARCHITECTURAL RECORD.

We saw immediately what you would never perceive in print. The initial images we received in New York had described a kind of interior luxe, a large colorful space filled with custom appointments and furnishings. The reality, however, jarred with the imagery. Time and the human hand had lightly soiled the walls with a skein of use like olive oil, worn the carpets and the plush velour of the perfect beige chairs. There is always a gap between the perfect picture and the inevitably grimy world.

The same trip demonstrated that the camera can inflate size and importance. You could see it in a flash, as the speeding train zipped by a vaguely familiar form. We had considered that tiny concrete building with the glazed façade beside the road. It had seemed so much larger when shot frontally from a low angle, but who would have known its actual size from the pictures? The reality was sobering, apparent even at high speed.

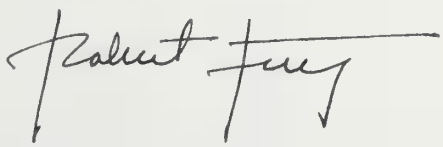
As the essayist Susan Sontag has pointed out, photographs routinely aestheticize the subject, turning it into a fetish, "an article of consumption," the object of our lust and fantasy. In architectural photography, the attraction is heightened by the shared desire of architect, photographer, and client to present the work in the best possible light. No one wants an ugly or cluttered shoot.

Architectural photography, a specialized craft, poses the question of documentation, by asking, "What is real?" The best professional photographers routinely lavish effort to catch the moment and will wait hours for the perfect morning light or the empty street. At its best, their work can be poetic, seductive, overtly beautiful. But is it real? And what does that term mean for the architectural photographer? Routinely the masters alter the setting for the best shots—by scrubbing and flooding the concrete pavement with water, moving wiring, and carting in plants.

Most importantly, the human eye and its point of view varies; no two photographers take the same picture. Seeing is personal, an action bound in the eye of the viewer and unique to the photographer. Technical mastery, format, and artistic sensibility all interplay in the resulting shoot. By modulating light, angle, mood, coloration, texture, weather, and clarity, the photographer inevitably interposes a layer of understanding and emotion that gives the shot a signature of personality and time. Craft becomes art.

For the last 150 years, architectural photography has relied on cumbersome methods that have demanded deliberate planning and execution to achieve the finished picture. Although the photographers that work for this magazine tend to be technical purists, new technology allows publications and photographers to expunge the unkempt detail, clone the sky, and remove the offending wart. This far-ranging wizardry, multiplied by contemporary software and the advent of the digital camera, raises questions of ethics and asks us to debate the complexities of picture taking and consumption.

This extremely mutable medium—surficial, as thin as the light that coats the architecture and bounces back to us—seems to be rocketing forward at warp speed. New media challenge our long-held methods and shake our confidence in what we observe. Is it real? Is it new? Is it fake? At RECORD, *we pledge that we will continue to scout, to personally visit as much of the architecture as is possible, before presenting major projects to you. For despite technical advancement in architectural photography, and despite the richness of the images we portray, one constant jumps up like a slap: To really get it, you have to see for yourself.*





Pillsbury Hall, one of the architectural treasures of the University of Minnes
was completed in 1889 as a home for the teaching of basic sciences. The Romanesqu
building was designed by noted architects Leroy S. Buffington and Harvey Ell

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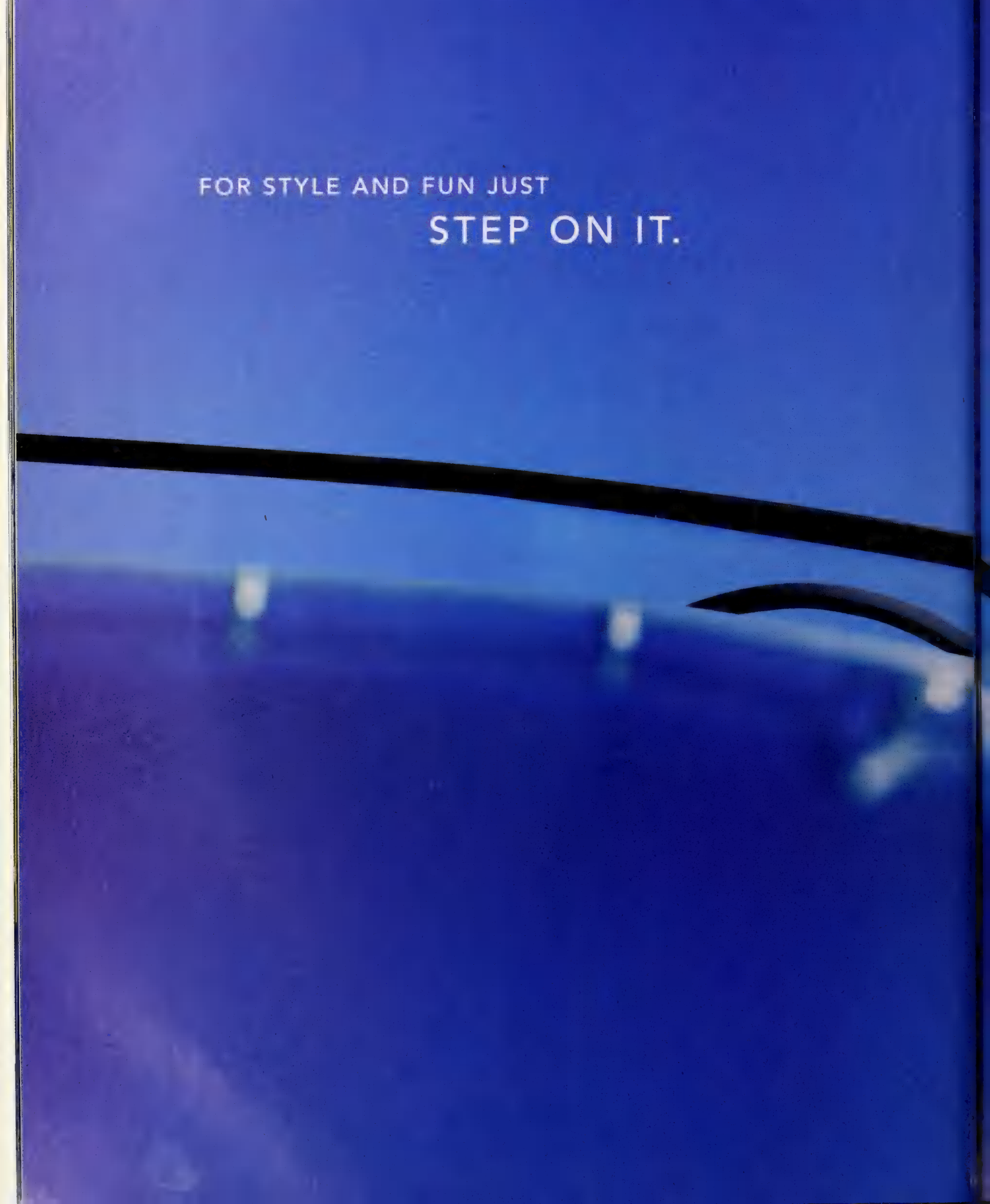
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CIRCLE 12 ON INQUIRY CARD

Letters

Picture if you will...
Can you imagine Philip Johnson, Richard Meier, and Peter Eisenman scurrying around every registration period trying to get together 36 Learning Units? Imagine if this ridiculous requirement had been instituted earlier: We may have found H.H. Richardson, Stanford White, and Louis Sullivan attending a class in Pendentive Bracketing for three Learning Units.
—Roy Euker, AIA
New York City

Bolder not always better
In your June issue [CRITIQUE, page 75], Robert Campbell, FAIA, critiqued our profession's over-emphasis on bold works, which are often appreciated primarily by the architectural elite. He was precisely on target. Architecture schools, professional journals (including RECORD), and awards programs have glorified 'novelty' to the detriment of all other values. Architects often complain that we are under- appreciated, under-compensated and viewed as arrogant by the public. Of course we are if function, harmony, and beauty are perpetually given a back seat to avante-garde innovation and fashion. And we reinforce this pattern every day—if it is radical looking and was designed by a star-architect, it couldn't possibly be bad and certainly not criticized lest we be branded boorish and uncosmopolitan.

If we are to regain the public's trust, and our place as the maestros of the built environment, we would do well to bring our values back into balance. While our minds should always push the boundary of what we know, innovative works should not be built or lauded for that virtue alone, but rather when they serve a greater good.
—Scott Rodwin, AIA
Rodwin Architecture
Boulder, Colorado

Stars in their eyes
Several different items in your June issue converged to underscore the gap which can occur between great design (and responsible budgeting) and an uncritical trust in celebrity architecture. Robert Campbell's critique [JUNE 2001, page 75] of the real depth and value of blobbed designs (and other such boldies) makes extremely important points about the often sad disconnect between surface fashion and inherent design value in the given total project. Beyond question, daring and bold architecture (Gehry at his best, say) can reach vogue status because it's bloody good inside and out—but you sure can't assume you're going to get great design in the fullest sense just by assigning the latest celebrity architects to your job. Case in point, in the same June issue [NEWS, page 28], the Wexner Center already needs a major renovation to make the building work—as though this wasn't a priority in the original design program?

Going for fashion and "names" is a very old game, and an old gripe. New forms, new tricks, new arguments: they're healthy, keep them coming. I think this only becomes a problem when turning to celebrity fashion becomes uncritical and unexamined, with attendant budget-blowing to fund the signature design. Campbell worries about the influence of the critic in sanctifying or hyping new-wave designers who may often fail to deliver real design below the photo-spread level. This is worth pursuing, but today I believe the problem starts with the client. One can easily see this with many academic or similar institutions who so obviously wish to be seen as certifiably hip: the short-lists for these owners' projects will unfailingly tie-in with heavily-published name recognition branded as the edge-du-jour. That would be great if this reflects true progressivism understood in some depth, but my sense of this is that it is increasingly a case of being on the bandwagon in a simplistic way—being able to show the institution is in vogue-step, rather than looking very deeply for the long-term value in the architect/program/context fit.

Now there also seems to be a willingness to go for vogue at any price: many high-profile projects carry budgets (and design fees to match) which have gone off the scale. I hope the world is getting design value to match. Earlier this year, Lincoln Center revealed a plan to renovate its performing arts complex [NEWS, JUNE 2001, page 43] for the obscene sum of $1.5 billion. The Lincoln Center buildings were disappointing from the start both for style and sometimes for substance, and renovation is certainly in order. But the last thing one of our most important cultural institutions needs to do today is send the message it lives in an economic stratum ever deeper in the elitist realm. Sure enough, Mr. Gehry is on the design team. Will enough of that money address function and the real business of connecting audiences and the arts? Or, will there be a huge effort to do yet another variation of forms which are now in danger of becoming predictable fashion?

As with any wave, we are getting a few great buildings at the height of current fashion, but this might be a time to look a bit harder for priorities and perspective. I look forward to further exploration of your June Critique issues.
—John von Szeliski, AIA
Costa Mesa, Calif.

Are the kids alright?
The tragic death last year of an architecture student in an automobile accident after an all-nighter in studio has raised some important issues and prompted a Studio Culture Task Force to investigate unhealthy and dangerous practices in architecture schools. While sleeplessness and automobiles do not mix well, we should be careful not to focus too much on the sleeplessness side of the equation. The well-intentioned complaints from students seem to place the blame exclusively on the time-honored practice of long and often late hours in studio. While their workload sometimes goes over the top, we need to ask about the increasing dependence on automobiles. Excepting commuter schools, why do we automatically accept that students must drive to and from campus? Why aren't there places available to live within walking distance? Why isn't transit available, or taxis, perhaps paid for by the school if hired after-hours? Why have we opted for patterns of development and a transportation system that burden all of us, including students, with the necessity of owning, registering, maintaining, insuring, fueling, and storing vehicles—to the tune of about $600 per month per vehicle. Students often spend more on cars than housing. And then there are, alas, the social costs of congestion, pollution, and injury and death, as this tragedy has so poignantly reminded us. The car, not the all-nighter, is the more recent and more lethal ingredient in studio culture. While I believe that architectural education continues to place too much emphasis on solo performance and obligatory, habitual experimentation that is more an end than a means, the hard work and competition of studio are not the real risk or danger. In fact, perhaps we should be proud that the lights in the architecture school burn latest on campus. I hope the Task Force focuses on improving campuses and transportation as well as

Letters

pedagogy and studio culture, while not assuming that automobile dependence is a given in our lives.
—Douglas S. Kelbaugh, FAIA
Dean, Taubman College of Architecture and Urban Planning
University of Michigan

Energized

It is heartening to see articles on sustainable energy design firming roots in the vastness of RECORD [DIGITAL ARCHITECT, JUNE 2001, page 195). The "fruits", when they bear, will be for all to relish. Energy consciousness is serious issue (though Mr. Bush may have different ideas) and the architectural community does and must laud the hard work that various companies and organizations are doing, especially to make it easier for architects to develop a sustainable design with ease and aplomb. The article "Resources for energy design and simulation." is a case in point.

Unfortunately, a couple of facts mentioned in there are unsubstantiated. The mention of Building Design Advisor (BDA) as the interactive front which works with Energy Plus is not true. In fact, work to develop an interface for Energy Plus is an ongoing project and the best guesses are that it is a ways off from completion.
—Ashish Chaturvedi
Chapel Hill, N.C.

Wake up

Architecture is poised, at this moment, to change in ways far beyond our current interest in materiality and sustainability. The design of sentient systems of response and control has seen little growth since the development of thermostats and security systems. Not any more. As evidenced by your decision to cover Ten Arquitectos' Educare School Gymnasium in Guadalajara in the June 2001 issue [page 118], some architects are now considering architecture as a sentient construct from the beginning of the design process. This is very different from the old way of finishing up a building's "design" and then calling in the engineers and other consultants to "add" environmental and security control systems.

But how could we be aware of this trend if we rely on the coverage you provided? Your headline refers to gills moving, which is very catchy, but we don't get any pithy quotes from the architect on the new approach, or a sense of what new technical developments were incorporated to make these gills possible.

In a time when there are fewer architectural magazines than ever, we need to rely on RECORD to catch on to trends like this, and give us insights we can use.
—Anders Nereim
Via e-mail

Pulp Culture

If your writers choose to use popular culture references, they might want to do a bit more research.

A statement from your Exhibitions column in the July issue ["Opposite attractions," page 67], regarding the "universal name recognition" of Frank Gehry, claims that the recent occurrence of Gehry's name in the television drama *Ally McBeal* is "proof that Gehry has become a branded entity . . ." the writer continues, " . . . the writers [of McBeal] obviously assumed that the audience would get it."

Though the position is astute, the argument is a tad tardy. In the late 80's, there was a five time, Emmy-award-winning television drama called *thirtysomething*. Perhaps you have heard of it. In one episode, a character compliments another on his nicely designed chair. The other character responds, practically in passing, "Frank Gehry."

This pop culture "proof" of Gehry's omnipresence was over a decade ago, not this last TV season.

What's next? I hope that a writer will not tell us that the



Information Age has begun earlier this year, and evidence of such a new phenomenon is this Summer's invention called the FAX machine!
—Anthony Poon, AIA
Los Angeles

Decadence at dawn, 2001

Going back to the first issue of this year [EDITORIAL, JANUARY 2001, page 19], and as another enthusiastic reader of Jacques Barzun's book, *From Dawn to Decadence*, I applaud your thoughtful review of this important book that has much to say to architects. It will appeal to architects who are searching for the substance beneath the surface of our effervescent culture.

In his survey of 500 years of cultural history in the West, Barzun guides the reader to a better understanding of why some works have survived and others have perished. For the architect who is seeking to distinguish the durable from the ephemeral in his or her day-to-day practice, I can't think of a better guide than Jacques Barzun—now, I believe in his 93rd year.
—Mark Ueland
Philadelphia

Fashion, turn to the right

I am one of those who have long deplored the descent of our noble profession into a business closely resembling that of clothes and the fashions that determine them. The speed with which critical opinion can change, the recycling rather than development of style, the hype accorded the shocking—you know the drill. When I saw Ulrich Lehmann's "Fashion and the cultural fabric of architecture" [CRITIQUE, APRIL 2001, page 61], I expected someone finally to observe that the emperor was wearing no clothes.

Instead, if I read Lehmann correctly—and these days, I'm never sure I understand the advanced language of the cultural establishment—he seems to be saying that it's okay. Relax and enjoy it. And he quotes the archenemy of decoration, Adolf Loos, to somehow bolster his argument.

I'm sorry. Architecture is, for me, still a profession and not a fashion. It carries with it the historic responsibilities to client and society as well as the reputation of the individual architect. This has nothing to do with the outrageous games of haute couture.
—Robert F. Gatje, FAIA
New York City

Digital signatures

I enjoyed Anthony Vidler's article [CRITIQUE, MAY 2001, page 71] discussing the "emerging computer style" generated by the digitalization of the design process and the as yet unresolved complications engendered by this transformation. However, I question if every digitally designed project has to be modeled after Bilbao? Important architects with signature styles have always engendered imitators who more often than not, appropriate only the stylistic elements, but not the essence of the original work. The finalist's designs for the Lyon, France science museum competition [NEWS, MAY 2001, page 44] gives one pause. Eisenman's design for the City of Culture in Galicia, Spain [NEWS, MAY 2001, page 48] was also unabashedly derivative of Bilbao.

I am not shocked by the copying but by the high profile names of the copiers! Where are the new form givers?
—Ken Laser
New York City

Corrections

Landscape architect and professor Michael Van Valkenburgh's name is misspelled on two occasions ["Landscape Urbanism: It's the future, not a contradiction", AUGUST 2001, page 66]. Also in that article, on page 68, images of South Coast Plaza's "Bridge of Gardens" are credited to landscape architect: Kathryn Gustafson. Kathryn Gustafson was lead designer on that project; landscape architect of record was Anderson & Ray, Seattle, Washington; architect was Ellerbe Becket, James Poulson, principal; and pedestrian bridge engineers, HNTB.

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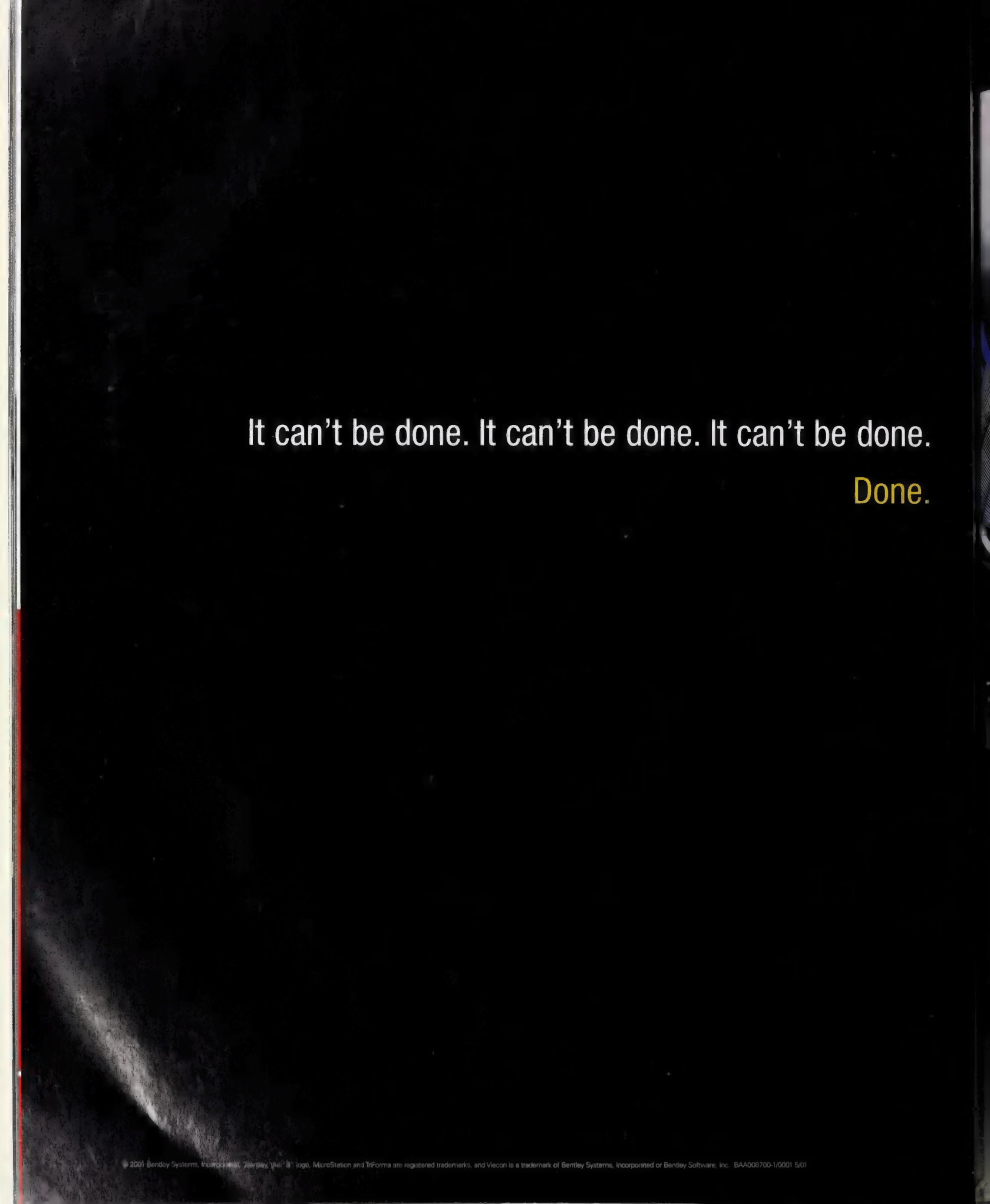
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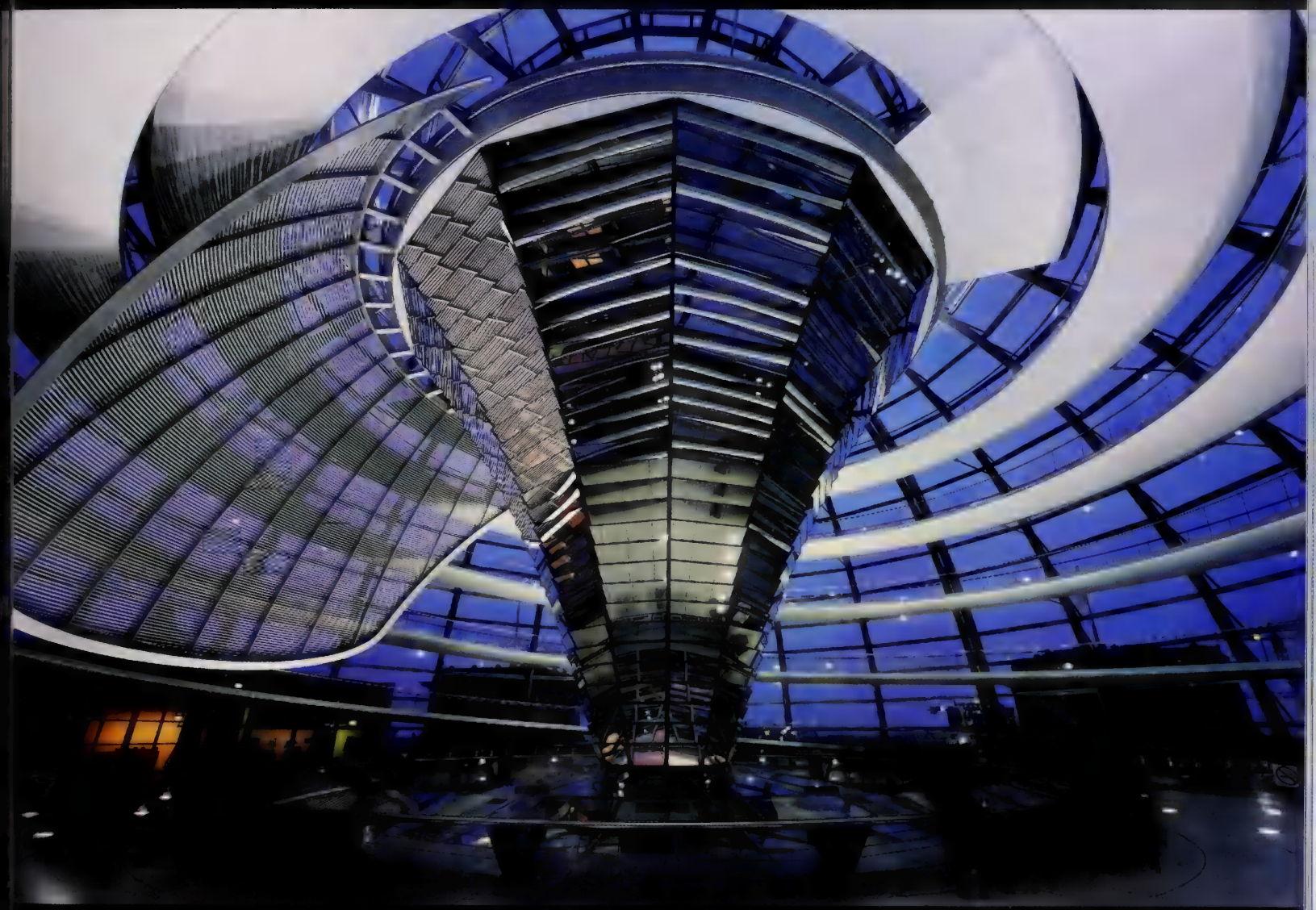
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Record News

Highlights Construction forecast p. 34
Protesting Gehry p. 36
Trump to build in Chicago p. 40
What's shakin' in L.A. p. 42

Architects and preservationists rally for Saarinen's TWA Terminal

For many architects, Eero Saarinen's 1962 TWA terminal building at New York's John F. Kennedy International Airport epitomizes the architecture of flight. That's why Philip Johnson, FAIA, and fellow New York architects Robert A.M. Stern,

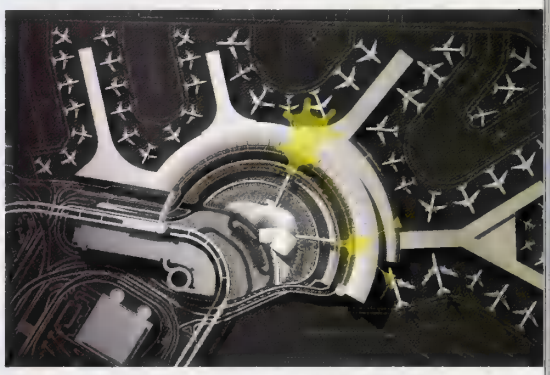


FAIA, and Peter Samton, FAIA, joined Museum of Modern Art president Agnes Gund in an Aug. 14 press conference to rally support for protecting Saarinen's masterpiece at JFK. Supporters fear that the terminal is on the road to destruction, even if full demolition is not imminent. The Municipal Art Society (MAS) hosted the event, which also included representatives of the National Trust for Historic Preservation and other civic groups.

The Port Authority of New York and New Jersey will keep most of the Saarinen building in its JFK expansion plans, but it would no longer be used as a terminal and may be converted into a restaurant or other uses. A concept master plan developed by Beyer Blinder Belle shows how the original two satellite gate areas would be demolished (above right, in yellow) and new terminals for United Airlines and JetBlue Airways would surround the Saarinen building.

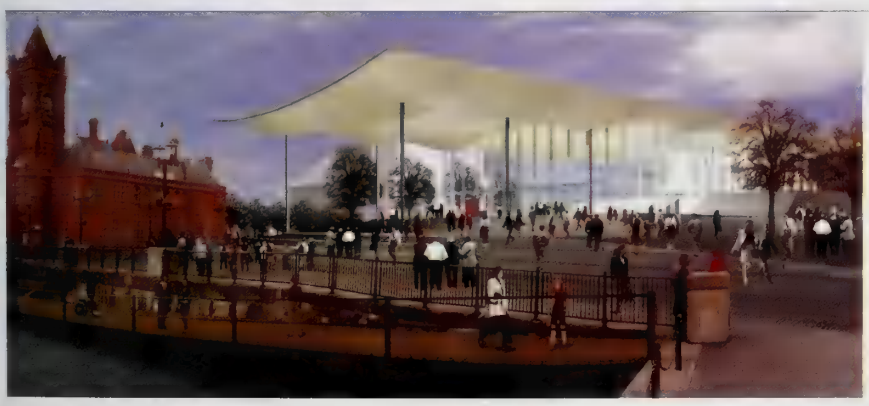
Stern drew a parallel to New York's Pennsylvania Station, for which demolition was foreseen but could not be stopped. "The TWA building is the Pennsylvania Station of the air age," said Stern. "To cut any part is to open the door to its final destruction . . . Remember Pennsylvania Station! Let's not make the same mistake again!"

Frank E. Sanchis, executive director of the MAS, told a New York Landmarks Preservation Commission hearing, "The best way to preserve Saarinen's masterpiece is to preserve its function. We have great fear if this building is relegated to an auxiliary use, its survival will be threatened." *John E. Czarnecki, Assoc. AIA*





Peter Samton, Philip Johnson, Agnes Gund, and Robert A.M. Stern (from left) speak out against plans (above, top) to alter and change the use of the original TWA terminal (above).



Welsh Assembly dismisses Lord Richard Rogers

In a remarkable move for a high-profile commission, Richard Rogers Partnership (RRP) has been dismissed from its role as architect of the Welsh Assembly building in Cardiff after the firm completed the design. The Welsh Assembly terminated Rogers' contract July 17 due to forecasted cost increases. At press time, the assembly had invited RRP to suggest ways that the project could be completed under budget. It was unclear if the assembly would move ahead to hand procurement responsibility for Rogers' design to another company. Construction was halted after pilings were driven.

The assembly building will be the first purpose-built headquarters of the Welsh government following the devolution of power from London in 1998.

The project has been the subject of intense cost scrutiny since Rogers won an international competition for the building in 1998. The original construction cost was $21.8 million, but it escalated alarmingly—the cost of the roof alone has risen by 200 percent. Current estimates for the total building cost are around $65 million.

Rogers' termination marked the culmination of several months of worsening relations between RRP and the Welsh Assembly. Excerpts of a letter from Lord Rogers to Edwina Hart, the Welsh finance minister, were leaked to the British press in late June. "The project has been bedeviled by your representatives' attempts to disguise the cost implications of a wide range of client decisions," wrote Rogers. "I sense that RRP is being blamed for the cost consequences of these factors. This is unacceptable."

Rogers has suggested that client demands for the use of native Welsh materials, as well as "divisive and adversarial" contractor arrangements are behind the cost increases.

The extent of compensation to RRP has not been determined. Rogers expects payment for work completed and may consider legal action. *Adam Mornement*

OFF THE RECORD

TIME magazine named Steven Holl the best architect in America. And you thought you were it?

British firm David Chipperfield Architects has been selected to design both the $24 million main public library in Des Moines and the British Film Institute's Film Centre.

The five firms on the U.S. General Services Administration shortlist to design a $306-million, 771,000-square-foot Census Bureau headquarters in Suitland, Md., are A of Washington, D.C.; Eric Owen Moss of Culver City, Calif.; Kohn Pedersen Fox of New York; Skidmore, Owings & Merrill of New York; and Studios Architecture of San Francisco.

Rem Koolhaas, Thom Mayne of Morphosis, and Spanish firm Miralles Tagliabue are finalists in a competition for the $140 million California Department of Transportation (Caltrans) headquarters in downtown Los Angeles.

The Chicago Symphony Orchestra performed September 9 at the gala opening of the Jewish Museum by Daniel Libeskind in Berlin [JANUARY 1999, page 76].

The shortlist has been narrowed to three teams competing for the $122 million main public library commission in Minneapolis: Ellerbe Becket with Meyer Scherer & Rockcastle; Cesar Pelli & Associates with Architectural Alliance; and RSP Architects with Hardy Holzman Pfeiffer. The next round of interviews is in mid-September. The library will be part of a two-block, mixed use project.

North Korea needs good architects, badly. The country has announced that training quality architects is a "number one priority," and has asked countries such as Britain to provide architecture scholarships at their best schools.

NEA announces New Public Works grant recipients

Recipients of the second annual National Endowment for the Arts (NEA) New Public Works initiative were announced in August. The NEA initiative awards up to $50,000 each to 10 organizations to fund design competitions for a range of projects. Particular emphasis was given to landscape design competitions this year, with six recipients which had a significant landscape component. Each applicant has one year to complete the competition.

This year's recipients include Art Center College of Design in Pasadena, Calif., Brooklyn Public Library in Brooklyn, N.Y., City of Perth Amboy, N.J., Denver International Airport, District of Columbia Office of Planning, Papago Salado Association of Phoenix, Real Art Ways of Hartford, Sixteenth Street Community Health Center of Milwaukee, and the University of Florida in Gainesville, Fla.

One recipient, the New York City Department of Design and Construction, received a $50,000 grant to support an open design competition for an expansion of the Queens Museum of Art. The proposed jury includes Enrique Norten, Merrill Elam, AIA, David Childs, FAIA, and Ben van Berkel.

"By encouraging communities to conduct these competitions," NEA chair Bill Ivey said, "we are ensuring that, no matter where they are located, they have access to the best, most innovative design talent available."

Next year's initiative, which will have an emphasis on school design, will be expanded to award up to



$1.25 million for as many as 20 projects. New Public Works will provide up to $75,000 each for as many as 10 school design projects and up to $50,000 each for up to 10 general projects. For more information on New Public Works, visit www.arts.gov. Letters of interest for the next round of grants are due January 11, 2002, for competitions to begin in fall 2002. *JEC*

U.S. building forecast shows little change from 2001 to 2002

Total building contract activity in the United States is not expected to differ greatly in 2002 from 2001 projected totals, but the 2001 numbers show marked declines in most building type categories from 2000, according to F.W. Dodge. The 2001 numbers are based on actual totals through May with projections for the rest of the year. An estimated 4.72 billion square feet of building space will be contracted ed this year, a five percent decline from 4.97 billion square feet in 2000 and a nearly eight percent decline from 5.10 billion square feet in 1999. Nonresidential contract activity is expected to decline 10 percent this year from 2000, from 1.86 to 1.68 billion square feet. In the chart, percent change is based on the prior year totals in the same category.

Chart Source: F.W. Dodge

KEY: MILLIONS OF SQ. FT.

	1999	2000	2001	2002
TOTAL BUILDING	**5098.9**	**4967.0 -3**	**4718.8 -5**	**4755.9 +1**
NONRESIDENTIAL	1844.0	1862.2 +1	1680.1 -10	1643.5 -2
COMM. & INDUST.	1258.0	1286.7 +2	1115.4 -13	1082.3 -3
STORES	310.7	308.5 -1	270.4 -12	259.7 -4
WAREHOUSES	259.0	298.1 +15	242.9 -19	229.6 -5
OFFICES	278.8	300.0 +8	256.8 -14	243.2 -5
HOTELS	83.1	70.1 -16	62.1 -12	67.1 +8
GARAGES/SERV. STATN	185.1	199.6 +8	180.9 -9	173.1 -4
MANUFACTURING	141.4	110.3 -22	102.3 -7	109.7 +7
INSTITUTIONAL	586.0	575.5 -2	564.7 -2	561.2 -1
EDUCATION	244.1	251.1 +3	262.8 +5	258.8 -2
DORMITORIES	17.7	21.9 +24	22.3 +2	23.1 +3
HEALTH FACILITIES	98.8	87.7 -11	79.8 -9	82.9 +4
PUBLIC	49.8	44.5 -11	40.9 -8	39.8 -3
RELIGIOUS	48.7	49.7 +2	50.0 +0	46.6 -7
AMUSEMENT	88.1	93.9 +7	80.0 -15	77.1 -4
MISCELLANEOUS	38.7	26.7 -31	28.9 +9	33.1 +14
RESIDENTIAL	3255.0	3104.8 -5	3038.7 -2	3112.4 +2
SINGLE FAMILY	2750.9	2642.7 -4	2576.6 -3	2625.3 +2
MULTIFAMILY	504.1	462.0 -8	462.1 +0	487.1 +5

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OFF THE RECORD

New York-based publisher Condé Nast has hired [illegible] as a consultant, offering editorial and marketing advice. He is not being hired to design a building. Condé Nast publications include *Architectural Digest, House and Garden, New Yorker, Wired,* and *GQ.*

British firm [illegible] has won a competition for the masterplan and new academic buildings at the University of Lincoln in Lincoln, UK.

A $1.4 billion expansion has been approved for Oakland International Airport. Also in Oakland, Kansas City-based [illegible] has been hired to evaluate possible new ballpark sites for the A's.

The [illegible] is working with [illegible] on stories about the state of American schools, scheduled to air in September.

New York's [illegible] has been selected to design a new museum and visitor center at the Gettysburg National Battlefield Museum. [illegible] were competing.

The [illegible] announced a surprising $150 million cost increase for the project due to limited federal aid and unexpected price hikes in construction. The project's price tag is now about $14.4 billion.

[illegible] has the commission for the $28 million College of Engineering at North Carolina State University in Raleigh.

[illegible] has moved its 400+ staff into new offices in a renovated warehouse building at 701 Washington Avenue North in the Minneapolis Warehouse District.



Environmentalists urge Gehry to quit plans for Playa Vista developer



The Playa Vista site, once owned by Howard Hughes, includes the Ballona Wetlands.

Frank Gehry, FAIA, is the object of environmentalists' ire since having been hired by developer Rob Maguire to create a masterplan and design four buildings for a portion of Playa Vista, the largest swath of undeveloped land in Los Angeles.

Playa Vista's 1,087 acres includes the Ballona Wetlands, but the 60 acres that Gehry is planning is not a part of this system. Environmentalists, including a group called the Ballona Valley Preservation League, would rather have the entire site preserved as open space. They're concerned that having a well-known architect like Gehry on board will add momentum to the development of more of the land in the future, including the wetlands.

Playa Vista, adjacent to the Pacific Ocean, is just north of Los Angeles International Airport and south of Santa Monica. Howard Hughes owned the property in the 1940s, and built a runway and aircraft plant. The hangar in which Hughes built his Spruce Goose seaplane remains on the site, and will be preserved. A number of development proposals for the land have died in the past 20 years, including plans for a DreamWorks studio in 1999.

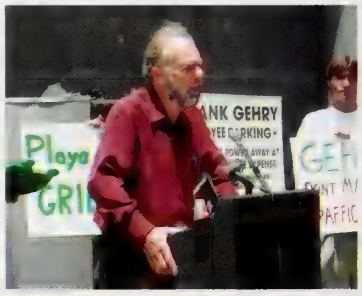
The primary developer, Playa Capital, now plans more than 8,000 housing units, including low-income housing, and about five million square feet of commercial, office, and retail space, while keeping more than half of the 1,087 acres open space. Construction has started on about 700 apartment units.

Gehry is working solely for Maguire, who is in the process of purchasing 60 acres with 10 existing buildings from Playa Capital for $90 million. Gehry will design four buildings totaling 450,000 square feet of space, and his firm is planning to relocate into a 45,000-square-foot building formerly used to manufacture helicopters. The landscape firm Olin Partnership will plan the 14 acres of open space around the Gehry buildings, and Gensler is working with Gehry's office on the building designs.

Protesting Gehry's role in Playa Vista, activists picketed and held a 90-minute vigil in front of his office on July 30. Environmentalists held signs that called Gehry a "frog murderer" and Malibu architect Eric Lloyd Wright, grandson of Frank Lloyd Wright, spoke. Wright told RECORD, "Gehry's removal from the project may not stop the developer from moving forward, but his involvement gives a stamp of approval to the whole project, making it much harder to stop Playa [Capital] from developing all of the land."

Activists tried to make a personal plea by protesting in front of Gehry's home on Aug. 8, delivering an 8-foot-tall "Earth memo" signed by more than 1,000 people.

In a meeting with protesters, Gehry's partner James Glymph, FAIA, said Gehry Partners will remain on the project, stressing that the 60-acre site has been zoned for industrial uses for many years and the development will not harm wetlands. *Danette Riddle and JEC*





Activists, including Eric Lloyd Wright (above), protested outside Gehry's office on July 30.



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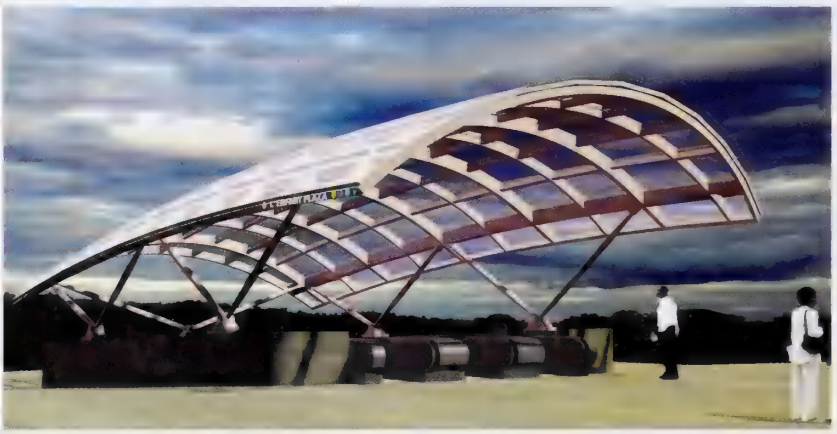
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CIRCLE 16 ON INQUIRY CARD



D.C.-area architects win competition for Metro canopies, former-awardee Moore outraged

Drawing inspiration from the distinctive curved, coffered ceilings of the Washington, D.C. Metrorail subway system, architects Jon Lourie, AIA, Richard Chenoweth, AIA, and Richard Houghton collaborated to win an international competition to design a canopy prototype for Metro's outdoor station entrances. The canopies are intended to shelter Metro escalators, which are often in need of repair due to exposure to inclement weather.

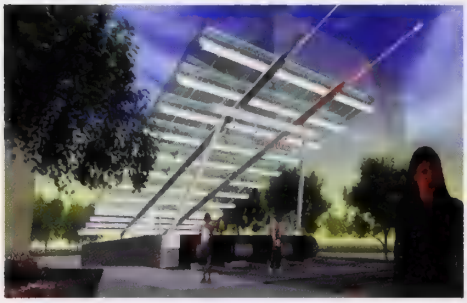
The competition, sponsored by the Washington Metropolitan Transit Authority (WMATA), attracted more than 167 international entries, but all four finalists were Washington, D.C.-area architects. Lourie, Chenoweth, and Houghton are from Silver Spring, Md. Other finalists included the team of Stanley Ira Hallet, FAIA and Ali Omar; the Weihe Design Group; and Arthur Cotton Moore, FAIA.

Late last year, Metro awarded the design commission to Moore [DECEMBER 2000, page 34], but many local architects spoke out against both Moore's design (below, center) and the WMATA's architect-selection process. The WMATA subsequently denied Moore the contract and initiated the competition with Moore as an automatic finalist. But Moore was never fired and was not paid for the design services he provided.

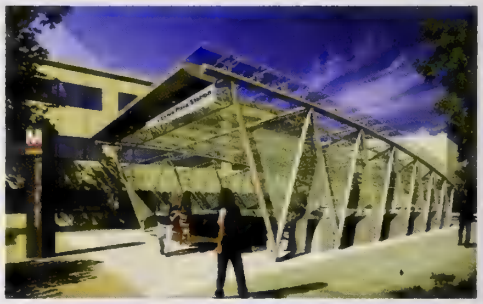
"They hired us, which is a procurement," according to Patricia Moore, speaking for Moore's office. "They never fired us, they had no reasonable cause to fire us, and then they commissioned the competition, which is a second procurement. I've got three lawyers knocking on the door telling me we have a case here."

Speaking for the winning architects, who worked with Arup on their design, Lourie noted that the glass-and-steel canopy paid homage to Metro architect Harry M. Weese's coffered vaults. He said the competition had been an opportunity for smaller firms to enter the realm of civic architecture.

Canopy construction will likely start in spring 2002, with all 46 to be complete by 2005. An estimated $27 million has been budgeted for the canopies. *Ellen Sands*







The Metro canopy design by Jon Lourie, AIA, Richard Chenoweth, AIA, and Richard Houghton (top) won the competition in Washington, D.C. Finalist entries include those by Stanley Ira Hallet, FAIA, and Ali Omar (above, left), Arthur Cotton Moore, FAIA (above, center), and Weihe Design Group (above, right).

"A man of our times," Clinton likes contemporary look for his office

Bill Clinton is remarkably receptive to contemporary design, which surprised the architect of his office, Navid Maqami, AIA.

"I was worried that he would want something traditional, but he's a man of our times," Maqami told RECORD. Maqami is the director of the New York office of Greenberg Farrow Architecture, which worked with Gruzen Samton Architects on the design of the former president's Harlem office. Interior designer Sheila Bridges, lighting designer James Underwood, and interiors consultant George M. Romanella assisted on the project.

Clinton moved into the 8,600-square-foot office in August, after first considering a much more expensive space in the Carnegie Hall Tower in midtown Manhattan. Located on the top floor of a 14-story office building on 125th Street, the office was renovated at a cost of $6.21 per square foot, according to the General Services Administration. Maqami said some millwork and lighting plans were scaled back to keep costs in line with a tight budget and timeframe. Taxpayers will pay for the $31.50 per square foot rent, which is cheap compared to the $89 a square foot cost at Carnegie Hall Tower.

The president's office is a 22-by-42 room, with a desk at one end, an informal seating area, and a table for meetings. Nine-foot-tall bookshelves, covered in Cherry veneer, line his personal office walls. Maqami said bookshelves were a top priority: "He'd often ask, 'do I have enough bookshelves?'"



Computer rendering of Clinton's Harlem office.

The remainder of the office suite includes a reception area, glass-enclosed conference room, and offices and cubicles for Clinton's 10-person staff.

Clinton joined the architects in selecting chairs at the Bernhardt Design showroom in Manhattan. Maqami said Clinton personally tested the chairs that he selected, including Bernhardt's Prague chair, designed by Madonna's brother Christopher Ciccone. *JEC*



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CIRCLE 17 ON INQUIRY CARD

Chicago's Millennium Park construction at least three years late and far over budget

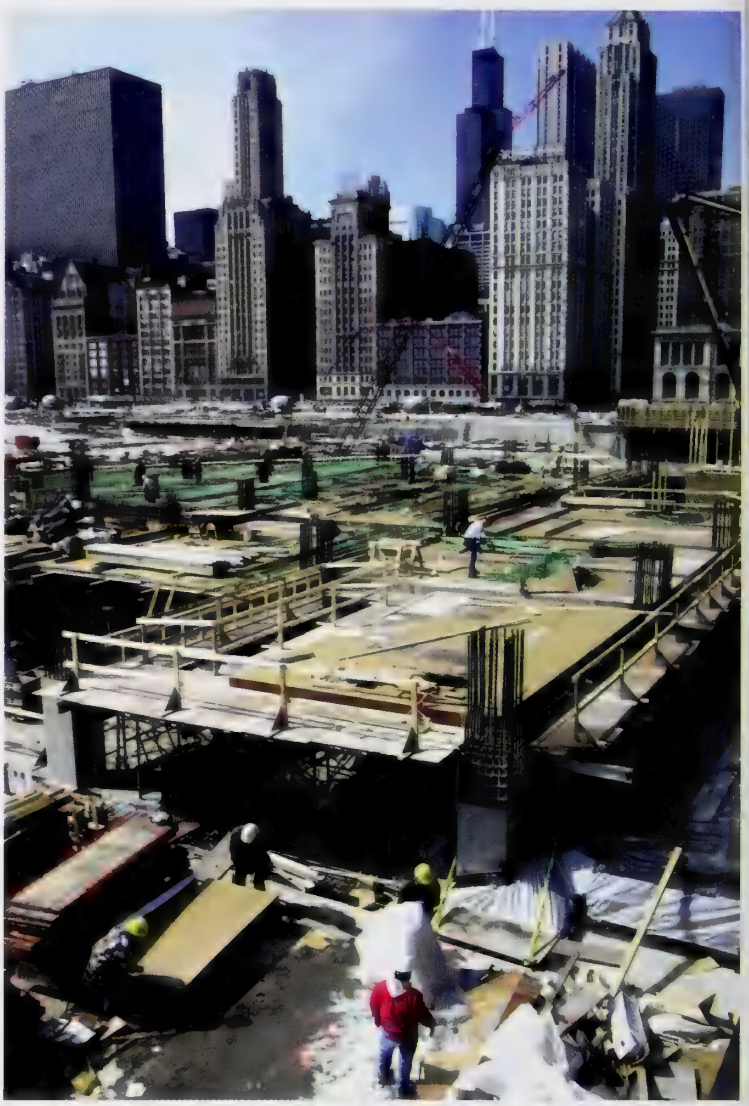
The turn of the millennium has come and gone, but Chicago's Millennium Park has yet to open. Originally planned to open in summer 2000 to highlight the city's millennium celebration, the ambitious park just north of the Art Institute along Michigan Avenue is now far over budget, and still two years away from completion. Initially budgeted at $150 million, the park costs are now estimated to be near $370 million. A number of problems and misjudgements have plagued the planning and construction of the park, now likely to be complete in summer 2003.

Under construction at the northwest corner of Grant Park on land that was once a railyard, the 24-acre park is bounded by Michigan Avenue, Columbus Drive, and Randolph and Monroe Streets. Mayor Richard M. Daley unveiled the park plans in spring 1998, and estimated the cost at $150 million with $30 million coming from private donors and most of the rest coming from revenue from a new underground parking garage. The park, built above a 2,500-car garage, will include a metal band shell and trellis by Frank O. Gehry, FAIA, an indoor performance venue for the Chicago Music and Dance Company, and a large sculpture by artist Anish Kapoor.

Planned as a fast-track project, the push to build quickly ultimately caused more problems. A complicated project, the park is built on top of the parking garage and partly on a bridge spanning the remaining commuter rail tracks. A *Chicago Tribune* investigation published August 5 revealed how problems arose when construction began while planners had only vague ideas about what would actually be built on top of the park. As plans progressed, numerous design revisions called for engineering and construction changes that delayed the project and drove up costs. As revisions were made, hundreds of caissons already in the ground had to be enlarged or shortened, or new ones had to be added. The *Tribune* also reported that city officials rushed to begin the parking garage construction before a building permit was issued. Planned for completion in February, the garage is unfinished.

Private donations, now totaling more than $100 million, are funding the band shell and sculpture. Meanwhile, other aspects of the park plans have been discarded due to cost overruns. A crushed-granite promenade that was to run the length of the park will now simply be lawn. What was planned as a sloped lawn area near the bandshell for concert-goers will now be a flat lawn.

In reaction to the *Tribune* investigation, Mayor Daley blamed contractors and Gehry for delays, but Gehry said band shell construction documents were ready for bidding a year ago. Skidmore, Owings & Merrill is the primary architect for the park. *JEC*



Chicago's Millennium Park construction continues as the price tag soars.

Trump hires SOM for Trump Tower Chicago—may be world's tallest building

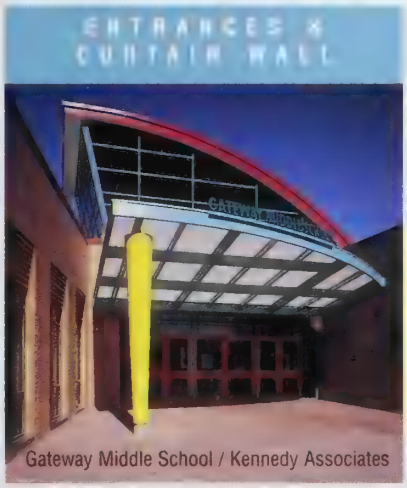
New York developer Donald Trump wants to make his mark in Chicago in a big way. He plans to develop a multi-use building in downtown that could be the world's tallest building, but the height and size has not been confirmed.

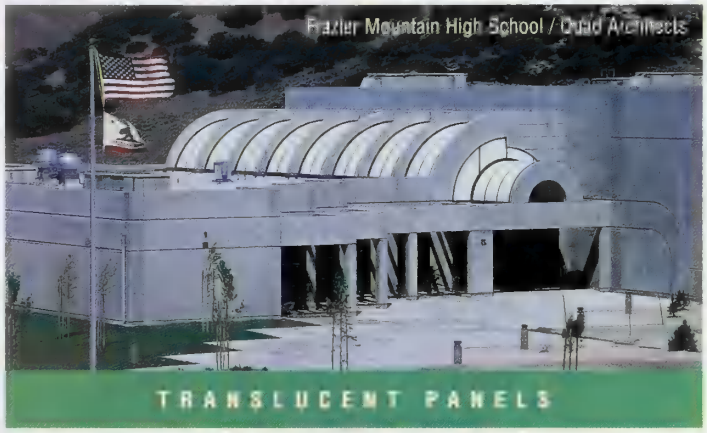
Trump is entering a joint venture with Hollinger International, parent company of the *Chicago Sun-Times*, to develop the project, called Trump Tower Chicago, to be located on the current site of the *Sun-Times* headquarters on the Chicago River at Wabash Ave. The 1.8-acre site would be valued at $75 million under terms of the joint venture agreement.

Skidmore, Owings & Merrill (SOM) has been hired for the commission after being considered on a shortlist that included Kohn Pedersen Fox and Lohan Associates. SOM partner Adrian Smith, based in Chicago, will head the design team. The building is expected to have 2.4 million to 3.1 million square feet of space, with luxury condominiums, office and retail space, and possibly a hotel. Whether the building will include a new *Sun-Times* headquarters remains to be determined.

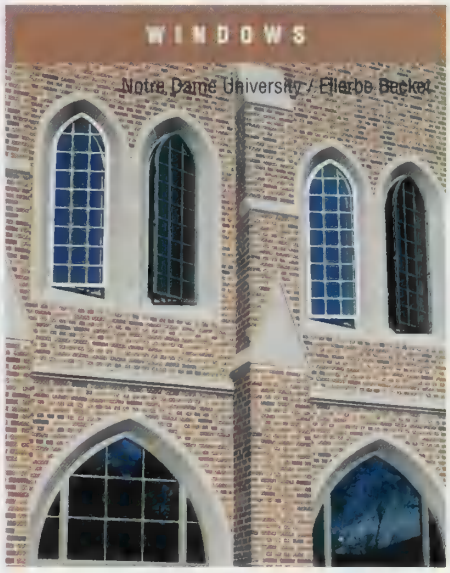
In a key move that would help Trump in his effort to build a lucrative tower on the site, the air rights over a parking structure just north of the *Sun-Times* building were put up for sale in August by the Marshall Field family, a former owner of the *Sun-Times*. Trump may acquire the air rights when they go on auction in October to assure that views to and from his building would remain intact. The proposed Trump building would increase the air rights value, and Trump may want to capture that before another developer benefits. While Trump has a casino in nearby Gary, Ind., he has yet to develop in downtown Chicago. *JEC*

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What's Shakin': New Architecture in LA exhibits eight projects in two MOCA locations

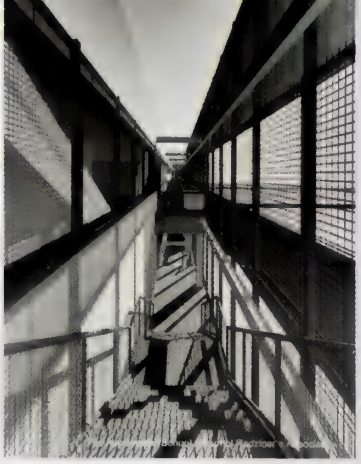
Architectural exhibitions tend toward retrospectives of an architect's body of work, but a new two-part exhibition put on by the Museum of Contemporary Art (MOCA) in Los Angeles attempts to capture the vitality evident in its hometown's current innovative construction projects. Opening simultaneously at MOCA at the Pacific Design Center and MOCA at the Geffen Contemporary on September 16, 2001, *What's Shakin': New Architecture in LA*, surveys eight projects under construction across the City of Angels.

A range of institutional, commercial, and public work is represented in the exhibition, through the use of models, video, digital imagery, and construction photographs, among other media. The shows are organized by Brooke Hodge, MOCA curator of architecture and design.

The two largest projects shown are both located in downtown Los Angeles—the Walt Disney Concert Hall by Frank O. Gehry, FAIA, which opens in 2003, and Rafael Moneo's Cathedral of Our Lady of the Angels, complete in fall 2002.

Two other projects offer variations on entertainment space. In Beverly Hills, one of three new U.S. Prada stores designed by Rem Koolhaas will include spaces for performance and exhibition as well as shopping. Michael Maltzan, in collaboration with Toronto designer Bruce Mau and Dutch landscape designer Petra Blaisse, has designed an addition to the UCLA Hammer Museum [JUNE 2001, page 42] that will also feature exhibition and performance space.





Two schools are also on exhibit. The new campus for the Southern California Institute of Architecture (SCI-Arc), designed by Gary Paige and SCI-Arc faculty and alumni, will be built inside an abandoned freight depot [MAY 2001, page 38]. Another school in the exhibition, the Accelerated School, designed by Marmol Radziner + Associates, will house over 800 kindergarten through 12th grade students. Corporate projects in the show include "The Pterodactyl" in Culver City by Eric Owen Moss and an office for Uniserve by Greg Lynn.

The Pacific Design Center portion of the exhibition runs through December 30, 2001, and the show at the Geffen Contemporary closes on January 20, 2002. *Kevin Lerner*

The show includes Koolhaas' Prada store (above) and the Accelerated School (right) by Marmol Radziner & Associates.

AIA and NOMA leaders discuss possible approaches to increase minority architect numbers

Leaders of the National Organization of Minority Architects (NOMA) met with leaders of the American Institute of Architects (AIA) in a summit August 1st to discuss ways to increase diversity in the profession.

"I sense there is an untapped pool of talent out there that we are overlooking," said John D. Anderson, FAIA, president of the AIA.

NOMA president Paul Taylor, AIA, called for the meeting, which included representatives of the National Council of Architectural Registration Boards, the Association of Collegiate Schools of Architecture (ACSA), and the American Institute of Architecture Students.

The NOMA is concerned that the number of African-American architects remains alarmingly low and has not increased. While 12.3 percent of the the U.S. population is African-American, in 1999 only 2.3 percent of U.S. architects were African-American, according to the Statistical Abstract of the United States. The growth rate in the percentage of African-American architects has been 0.7 percent, or essentially flat, since 1983, according to AIA statistics.

Based on ACSA survey findings, recommendations were made to attract more African-Americans into the profession: better exposure and education about the profession at the middle and high school levels, more funding including scholarships and grants, more role models, active recruitment of African-American students and faculty, additional recruitment efforts by African-American architects in their region's colleges and universities, better recruitment in the inner city, and summer design camps for high school students.

Gordon H. Chong, FAIA, 2002 president of the AIA, said the AIA will continue to nurture a partnership with NOMA. Summit members agreed to continue a dialogue to define a purpose, create a plan, and develop a network among collateral organizations. *JEC*



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CIRCLE 19 ON INQUIRY CARD

After years of planning, three museums open in Vienna's MuseumsQuartier

By the end of this month, Vienna will open three entirely new museum structures to complete its MuseumsQuartier, an extension of the city's monumental core that's ambitious even amid a European museum-building frenzy.

These treasuries are hidden behind a quarter-mile-long Baroque facade once housing imperial stables. The MuseumsQuartier is across from Vienna's famed Ringstrasse, the neo-Baroque pageantry of the art history and natural history museums, and the Hofburg Palace.

The prominent position of the Quartier accounts for its long and controversial history. A 1987 design competition was not decided until 1990, when Vienna-based Ortner & Ortner was chosen, with Manfred Wehdorn as the restoration architect. Though the scheme was continually pared back over succeeding years for lack of money, the design's stone, metal, and glass modernism, though restrained, raised hackles among preservationists. A slim, oval-shaped 200-foot-tall tower—intended as a kind of contemporary signpost visible from the Ring—was eventually scrapped. Director Wolfgang Waldner plans to eventually build the tower.

Two new structures, the Leopold and Ludwig collections, dominate the expansive courtyard behind the former stables. The Leopold collection houses an encyclopedic collection of seminal works covering Austria's contribution to the development of European Modernism from the Secession onward. It's a 127,000-square foot, off-white cube clad in limestone—evoking a Minimalist villa. Inside, the spaces are lofty, neutral, and luxurious with stone wrapping the walls and ceiling of the main stair and an entry atrium.

The Ludwig collection of art from the 1960s and 1970s forms the core of the Museum of Modern Art Ludwig Foundation Vienna. Ortner & Ortner built another cubic structure, though this one is clad in dark basalt stone with a roof that billows up into a gentle curve. The theatrical, industrial look of the full-height atrium was created by exposing the mechanicals of glass-clad elevators linked to white-box exhibition spaces by glass bridges.

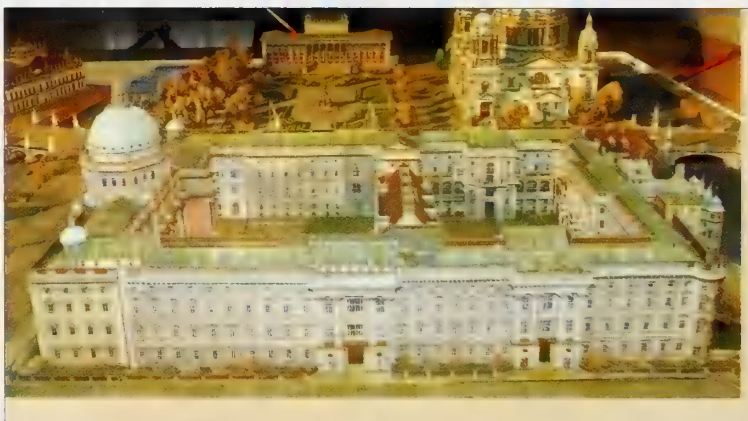
Tucked into or behind existing historic structures are venues for performances and exhibitions, the Architecture Center Vienna, the Tobacco Museum, and a children's museum. *James S. Russell, AIA*







Vienna's MuseumsQuartier (above) includes the Leopold collection (left) and the Ludwig collection (right) buildings, both by Vienna firm Ortner & Ortner.



Germany considers rebuilding Royal Palace

Berlin's Royal Palace (right), home to Germany's Hohenzollern dynasty for more than 200 years until 1918, was once the city's symbolic heart. Though much of the exterior survived World War II bombing, the Communist German Democratic Republic (GDR) destroyed the remains in 1950 for ideological reasons. The German government is considering reconstructing the Palace in some form in this 300th anniversary year of the House of Hohenzollern.

An international commission of politicians, architects, historians, and developers has been organized by the German government to supervise an architectural competition. The commission must address three questions: What should the new building look like? How should it be used? And, most importantly, who should pay for it, and how?

In July, the commission issued its first recommendation: The building presently on the site, the Communist-era Palace of the Republic, should be demolished and a structure approximating the size and appearance of the Royal Palace (model, left) should be built. The commission will likely issue a more lengthy building plan by the end of the year.

Opponents of rebuilding the Royal Palace argue that this would restore a symbol of Prussian militarism, but supporters emphasize that the goal is to reclaim the center of the city with a grand building.

Is reconstruction, at an expected cost of $800 million, practical? The Hohenzollern Palace was huge—built over centuries with ornamental façades and an equally impressive interior. The city of Berlin is shaken by serious financial problems, so the German Federal government will likely pay for much, but not all, of the reconstruction. The commission has not determined the building's functions, but it may need to include some revenue-generating uses. ***Eva Schweitzer***



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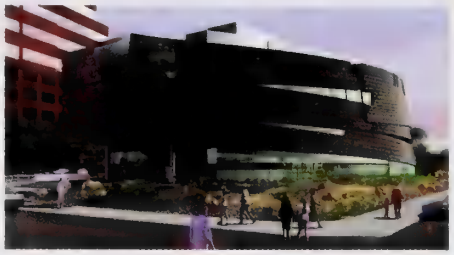
News Briefs

Vidler named Cooper Union dean Anthony Vidler has been named dean of the Irwin S. Chanin School of Architecture at The Cooper Union in New York City. A search for a new dean was launched last year, following the death of John Q. Hejduk, who had been dean since 1975. Vidler was professor of art history and architecture at UCLA from 1993 to 1996 and 1998 until this year. He was dean of the Cornell University College of Art, Architecture and Planning from 1996 to 1998, and was on the faculty at Princeton University for more than 25 years prior to 1993. The Cooper Union architecture program has not been known as a leader in integrating computer technology in its curriculum, but that may change. Dr. George Campbell Jr., president of The Cooper Union, told RECORD, "I think it's the right time to become aggressive in that area and Tony is open to that."



Vidler

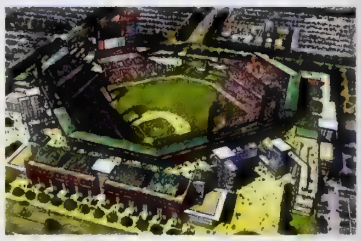
$6.3 billion O'Hare expansion faces opposition Chicago Mayor Richard M. Daley presented a plan this summer for a $6.3 billion expansion of O'Hare Airport, including commuter rail extensions, a new runway, two expanded runways, and a $3 billion terminal expansion. United Airlines rejected key elements of the plan, though, because of conflicts with a 1999 plan now being implemented. Opposition from surrounding suburbs is also expected. Illinois Gov. George Ryan, who must ultimately approve the plan, held four public hearings on the plan in late August.



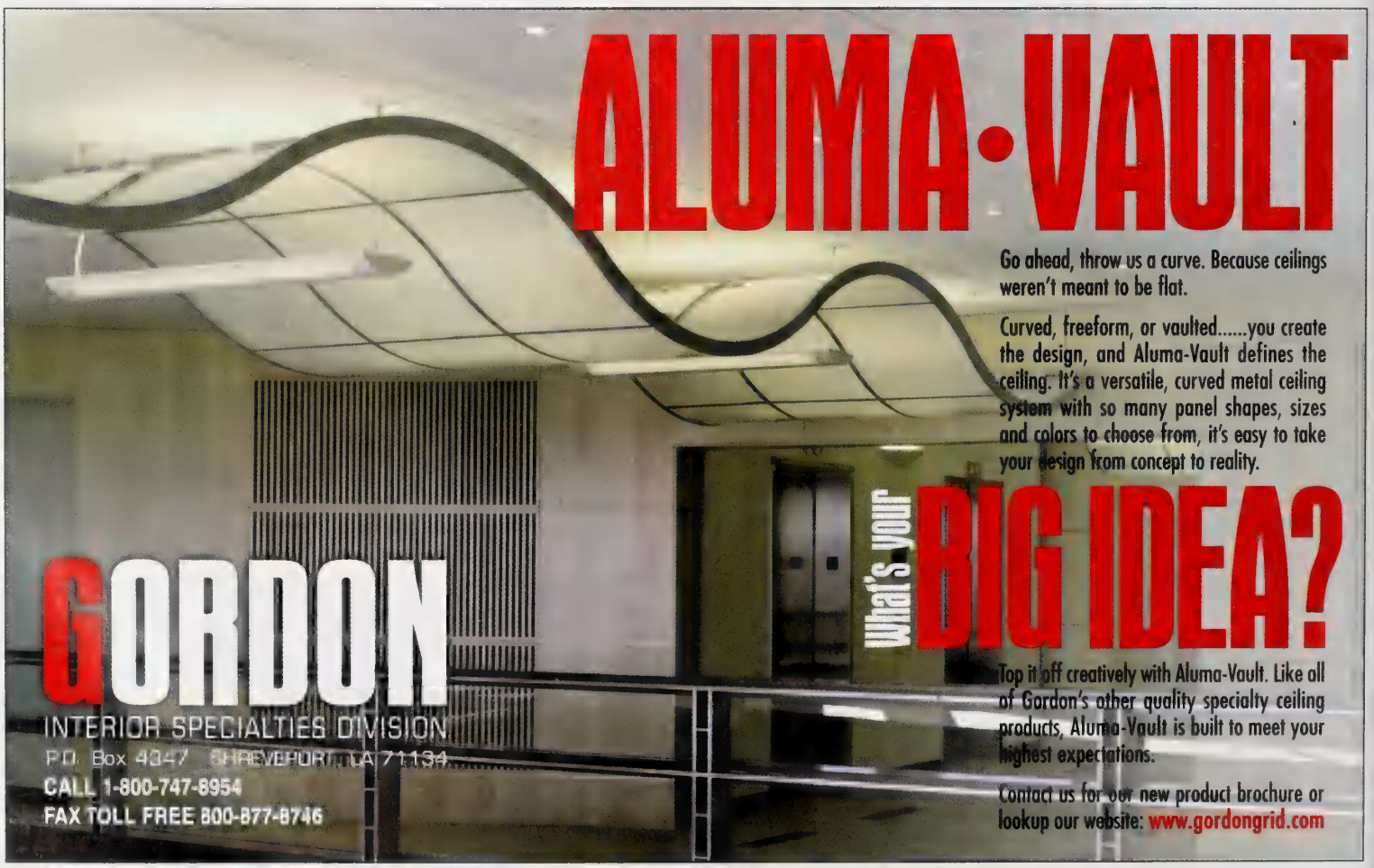
Nevada Museum of Art by Will Bruder.

Bruder's Nevada Museum of Art takes shape Construction is beginning on the new Nevada Museum of Art, The Donald W. Reynolds Center for the Visual Arts, E. L. Wiegand Gallery, by Will Bruder. The 55,000-square-foot Reno museum will include more than 13,000 square feet of exhibition galleries, a 180-seat theater, research library and study center, and a rooftop sculpture garden with views of the surrounding mountains. Inspired by the Black Rock Desert and Nevada landscape, Bruder chose to clad the four-story building in black slate. The $22 million building, being built on the existing museum site, opens in spring 2003.

Phillies unveil design for new ballpark The Philadelphia Phillies have unveiled their plans for a new baseball-only ballpark. Designed by Hellmuth, Obata + Kassabaum and Philadelphia's Ewing Cole Cherry Brott, the 43,000-seat ballpark will open in 2004 on a site just east of Veterans' Stadium, which will be demolished for parking. The ballpark, with views of the Philadelphia skyline to the north, will be part of a sport complex including a new Philadelphia Eagles football stadium, designed by NBBJ Sport, opening in 2003, and the First Union Center, recently completed for the 76ers and Flyers.



Phillies' proposed ballpark.



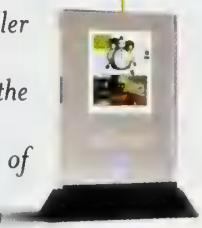
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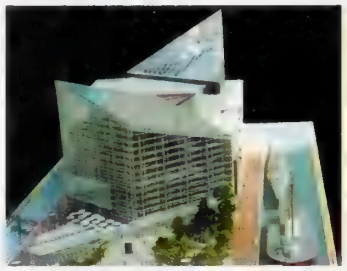
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News Briefs

$48 million expansion plans for National Aquarium Boston firm Chermayeff, Sollogub and Poole, whose partners designed the



National Aquarium $48 expansion

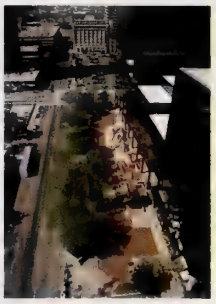
National Aquarium in Baltimore as part of the firm Cambridge Seven Associates, has been hired for a $48 million expansion and renovation of the 1981 Maryland aquarium. The 60,000-square-foot addition will include a replica of an Australian Outback river canyon with a 40-foot-tall waterfall. The expansion will be complete in 2005.

Fisher honored as America's Oldest Worker Green Thumb, a provider of training and employment for mature and disadvantaged workers, is honoring architect Harold Fisher, AIA, with its 2001 National Prime Time Award for America's Oldest Worker. Fisher, who turns 100 on Oct. 28, is founder and president of Harold H. Fisher & Associates, a firm specializing in religious architecture in Harper Woods, Mich. Fisher began as an architectural apprentice at age 15 in 1916, and founded his firm in the mid-1940s.



Fisher

Balsley to redesign Halprin's Skyline Park in Denver Landscape architecture firm Thomas Balsley Associates of New York was selected in a competition for a $12 million redesign of downtown Denver's Skyline Park. Initially designed by modernist landscape architect Lawrence Halprin in 1973, the 100-foot-wide sunken park runs along three blocks of Arapahoe Street. The tree-lined 3.2-acre area has served as downtown Denver's primary open space for years, but has since fallen into disrepair. The redesign, as suggested by Toronto urban design and planning firm Urban Strategies in a consulting plan, calls for areas for outdoor performances and festivals, botanical gardens, an ice rink, and fountains. The competition shortlist included DHM Design of Denver with Carter Tighe Leeming and Kajiwara of Marin County, Calif.; EDAW of Denver with Jerde Partnership of Venice, Calif.; Ken Kay Associates of San Francisco; and Hargreaves Associates of San Francisco. *Tony Illia*



Denver's Skyline Park

Architects Eric Bedford, Marshall Myers, and Martin Stern, Jr. die Eric Bedford, chief architect of the British government from 1950 to 1970, died July 28 at age 91. Bedford designed the 1961 Post Office Tower (now British Telecom Tower) in London. Marshall D. Meyers, FAIA, an architect who worked for Louis Kahn from 1957 to 1973, died Aug. 12 at age 70. Meyers was project architect for the Kimbell Art Museum, and completed the Center for British Art at Yale University after Kahn's death. Martin Stern Jr., an architect of Los Angeles coffee shops in the '50s and Las Vegas hotels in the '60s and '70s, died July 29 at 84. Stern designed the Sahara Hotel's first tower in 1959 and the MGM Grand Hotel.

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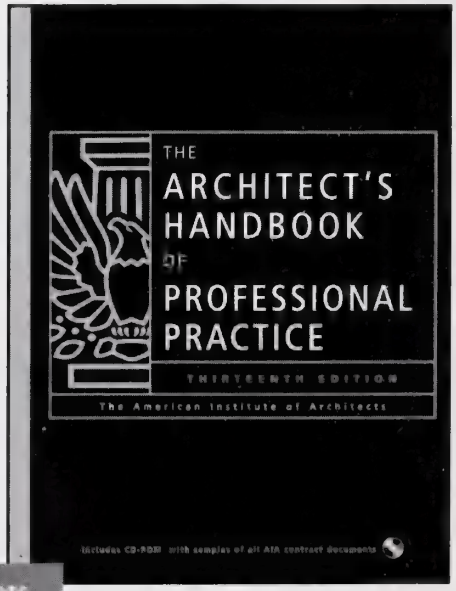
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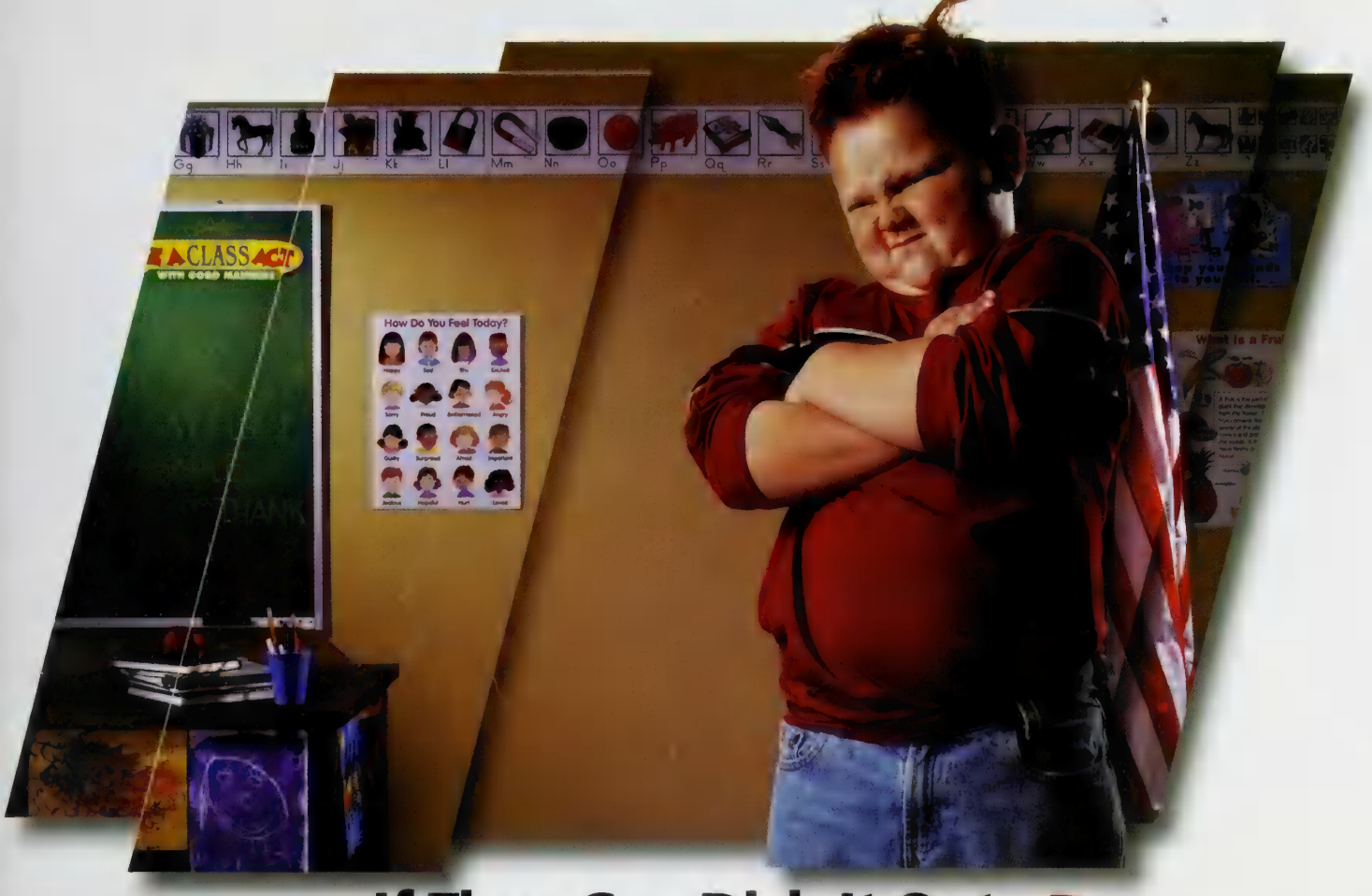
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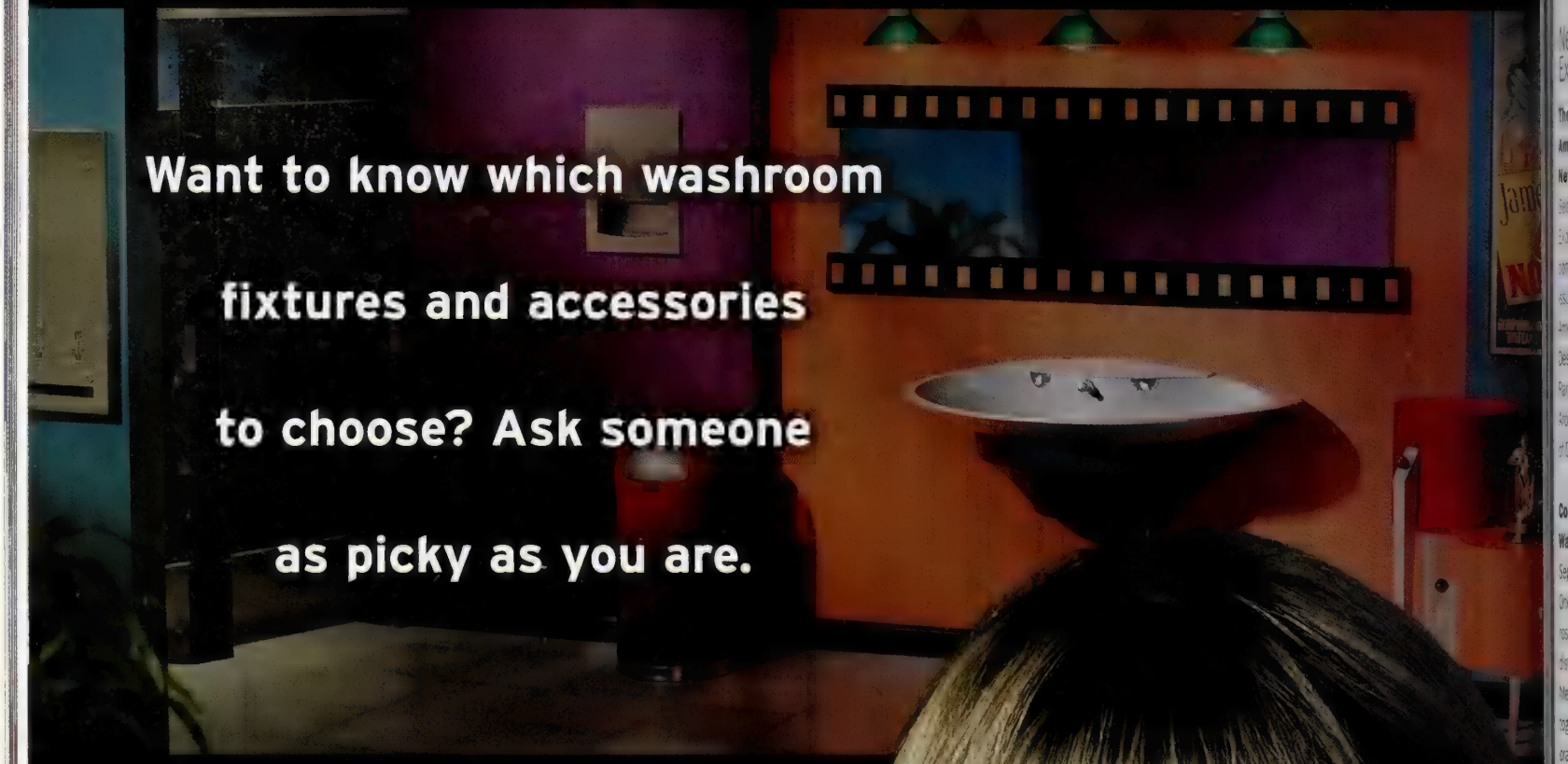
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Dates & Events

New & Upcoming Exhibitions

The Democratic Monument in America 1900–2000
New York City
September 5–October 3
Explores the complex and often conflicting beliefs that surround the issue of building monuments in America. Organized by the Harvard Design School in collaboration with Parsons School of Design. At the Aronson Gallery at Parsons School of Design. Contact 212/229-8987.

Connections: Cesar Pelli
Washington DC
September 12–April 28
One of the most comprehensive retrospectives on the life and work of distinguished architect and AIA Gold Medalist, Cesar Pelli. Through photographs, photo murals, over 100 drawings, and thirty original models, the show will explore over a half century of his career, culminating with his most recent work. At the National Building Museum. Contact 202/272-2448

The Architecture of the American Craft Museum—An Exhibition
New York City
September 14—January 13
An installation of a model of the newly designed building by architects Tod Williams/Billie Tsien and a photo essay documenting the construction process, from groundbreaking to near completion, of the museum's new site at 45 West 53 Street. Contact 212/977.7170 or see www.folkartmuseum.org.

Alternative Architecture: The Work of Allan Wexler
Buffalo
September 15—October 27
Exhibits the work of this unconventional artist/architect whose designs explore the relationship between the applied arts and fine arts through highly unusual, small-scale works of architecture. Other artists will be included in the show, as well. At Hallwalls Contemporary Art Center. Accompanying lecture by Wexler to take place on September 15, at the Albright-Knox Gallery. Contact lamarche@buffalo.edu.

Perfect Acts of Architecture
Pittsburgh
September 15–January 6, 2002
Features over 140 drawings and collages on the architectural meditations of architects from the 1970s and 80s when work was highly theoretical. Includes the works of Rem Koolhaas, Bernard Tschumi, Peter Eisenman, Daniel Libeskind, and Morphosis. At the Heinz Architectural Center. Contact stitelert@carnegiemuseums.org.

Nova Scotia Architect: Brian MacKay-Lyons—An Exhibition
Chicago
October 9-November 1
A traveling exhibition that explores the original work of this Canadian-born architect. The opening will commence in Chicago with a lecture from the architect entitled, "Stewardship." Graham Foundation. Contact 312/787-4071.

The Chicago Bungalow
Chicago
October 18–January 15, 2002
This exhibit offers a kaleidoscopic look at 20th century life in urban America as viewed though the architectural and social history of the Chicago Bungalow, via photos, memorabilia, and samples of decorative arts. At the Chicago Architecture Foundation. Contact 312/922-3432 or see www.architecture.org.

Ongoing Exhibitions

Mies in Berlin
New York City
June 21–September 11
Exhibits work from the early career (1905–1938) of architect Ludwig Mies van der Rohe. Though Mies is known mostly for his American Modernist glass skyscrapers, this exhibition will focus on early influences. At the Museum of Modern Art. Contact 212/708-9400 or see www.moma.org.

Mies in America
New York City
June 21–September 23
Exhibits work from the late career of the German architect Ludwig Mies van der Rohe, after he arrived in America in 1938. The Seagram Building in New York and the Farnsworth House in Illinois are the show highlights. At the Whitney Museum of Art. Contact 212/570-3600 or www.whitney.org. Exhibition complements Mies in Berlin.

Glass of the Avant-Garde: From Vienna Secession to Bauhaus
New York City
August 21–February 24
Featuring the Torsten Brohan Collection from the Museo Nacional de Artes Decorativas in Madrid, the exhibition surveys the early 20th-century avant garde glass movement in Austria, Germany, and the Czech Republic, and includes the work of Josef Hoffman, Otto Prutsxcher, and Michael Powolny. At the Cooper-Hewitt National Design Museum. Contact 212/947-4557.

From Arts and Crafts to Modern Design: The Architecture of William L. Price
Washington, D.C.
Through March 24, 2002
Exhibit is the first retrospective of the architect's thirty-year career and includes original drawings and paintings, furniture and decorative arts. Famous projects include Atlantic City's luxury hotels, many midwestern railroad stations and private homes. At the National Building Museum. Contact Russell C. Campbell III at 215/898-7798 or riii@pobox.upenn.edu.

Lectures, Symposia & Conferences

DC Builds—14th Street Renaissance
Washington, D.C.
September 4
14th Street NW, still scarred from the 1968 riots, is experiencing an amazing rebirth. Public officials, private developers, and local residents will discuss the complex issues involved in the rejuvenation of this corridor from downtown to Columbia Heights. At the National Building Museum. Contact 202/272-2448 or see www.nbm.org.

The Future of Public Space in an Era of Privatization
Washington, D.C.
September 5
A symposium moderated by Paul Goldberger of the New Yorker magazine. Panelists include Nathan Glazer, Jerold Kayden, and James Todd. At the National Building Museum. Contact 202/272-2448 or see www.nbm.org.

New York City on the Verge: New Design for the Waterfront
New York City
September 6
Organized by the Van Alen Institute, the symposium will present the ideas of designers directly engaged in the challenges of program, infrastructure, and design for

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2001 Bentley International User Conference
Philadelphia
September 23-27
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Design + Architecture 2001
Miami
October 1-30
Beginning on the 1st with D+A day, this month long celebration features a variety of exhibitions, tours, open houses, workshops, and lectures along the Florida Coast. The event is part of a community-wide effort to raise awareness of the impact of design and design-related fields in the immediate community. Visit www.designandarchitectureday.com.

An American Legacy: Sarasota School of Architecture Tour and Symposium
New York City
November 1-5
A five-day symposium and tour on land and water of 48 structures designed by Paul Rudolph, Ralph Twitchell and colleagues of the Sarasota School of Architecture who brought the ideas of Frank Lloyd Wright to sub-tropical Florida. At The Fine Arts Society of Sarasota. Contact 941/388-1530 or see www.sarasota-architecture.org.

Less is More: Tenth International Symposium of Architecture
Monterey, Mexico
November 2
A symposium featuring Ken Yeang, Manuelle Gautrand, Rodolfo Machado, Francisco Serrano and Alberto Kalach. Part of the University's 55th anniversary. At the Universidad Autonoma de Nuevo Leon, Facultad de Arquitectura. Contact 011 52 83 76 26 00 x111 or facarq@ccr.dsi.uanl.mx.

Architecture in the Form of Dialogue: 4th International Architecture Symposium - Pontresina, Switzerland
November 12–14
A three-day symposium dedicated to the discussion of media, politics, mobility, and architecture in the coming century. Sponsored by the British Council, the forum features an interdisciplinary panel of internationally known architects, theorists, and city planners, including Will Alsop, Wolf D. Prix, Maxwell Hutchinson, and Hani Rashid. Contact +41 81 838 83-18 or visit www.archisymp.com.

Tours

The Municipal Art Society Tours
New York City
September
As part of the continuing Discover New York series, there will be tours of Grand Central Terminal, Midtown Manhattan, Rockefeller Center, Greenwich Village, and other neighborhoods and sites. Contact 212/935-3960 or see www.mas.org.

Charleston's 25th Annual Fall Candlelight Tours of Homes and Gardens
Charleston, S.C.
September 20—October 27
Hosted by the Preservation Society of Charleston. Each tour highlights a different neighborhood. Contact 800/968-8175 or preserve@preservationsociety.org.

The Art and Architecture of Bilbao and Barcelona
October 12-19 and October 19-26
Hosted by Archetours, the tour examines the fascinating works of Gaudi to Gehry and many other greats in between! Contact 800/770-3051 or info@archetours.com.

Sicily: Archeological and Architectural Splendors
November 10-20
Hosted by Archetours, the tour combines luxury and learning about Greek, medieval, and even Art Deco architecture. Contact 800/770-3051 or info@archetours.com.

Conventions

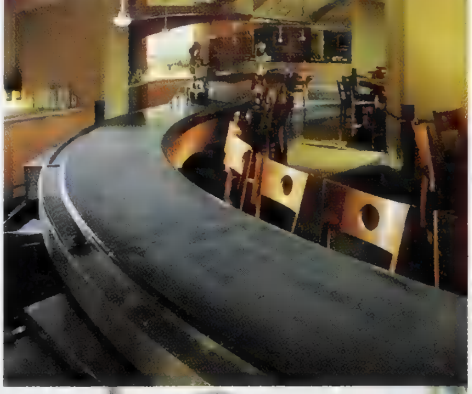
Restoration & Renovation
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Rail-volution: Building Livable Cities with Transit
San Francisco
September 13—16
Choose from over 60 workshops, plenary sessions, and symposia. Get an in-depth look at the latest in transportation innovation. Contact www.railvolution.com.

Six Degrees of Collaboration
Washington, D.C.
September 22–24
Explores the benefits and challenges of implementing the many technologies that foster collaboration in the building design and construction process. Sponsored by the AIA Technology in Architectural Practice (TAP)/PIA. Contact kshertz@ aia.org or 202/626-7579.

Build Boston
Boston
September 22–24
Brings together over 350 suppliers of building products and services and more than 11,000 architects, engineers, specifiers, contractors, facility managers and other networking specialists from all over the world. At the World Trade Center Boston. Contact 617/385-5214 or ed.hurley@fmr.com.

3rd Paradox Conference: Third-Millennium Habitats
Phoenix
September 21–23
Over three hundred architects, planners, and urban visionaries will convene to discuss the future of sustainable design, community planning, and its related cyberspace applications. Contact 415/865-0481 for more information.

AIGA National Design Competition 2001
Washington DC
September 23
Hosting an arena of speakers, the AIGA's ninth biennial national design will explore the ways in which design may shape and conversely impact society in the future. Visit www.aiga.org/content

Competitions

USITT Theatre Architecture Awards
Deadline: October 2
The United States Institute for Theatre Technology is hosting this competition for the best design of theaters anywhere in the world that are new constructions or renovations. Contact 800/93USITT or see www.usitt.org.

The City of Wildwood
Deadline: October 12
Soliciting designs for a new bicycle and pedestrian overpass that will serve as a connection in Wildwood, Mo., between the most populated areas and the town center. Team or individual entry. Contact 636/458-0440 or mcfinearts@earthlink.net.

Architecture for Natural Disasters
Deadline: November 14
Seeking exemplary temporary and permanent architecture that prepares for or responds to natural disasters. Sponsored by the Takiron Company in Japan. Contact 81 3 3818 1961 or fax 81 3 3818 6742.

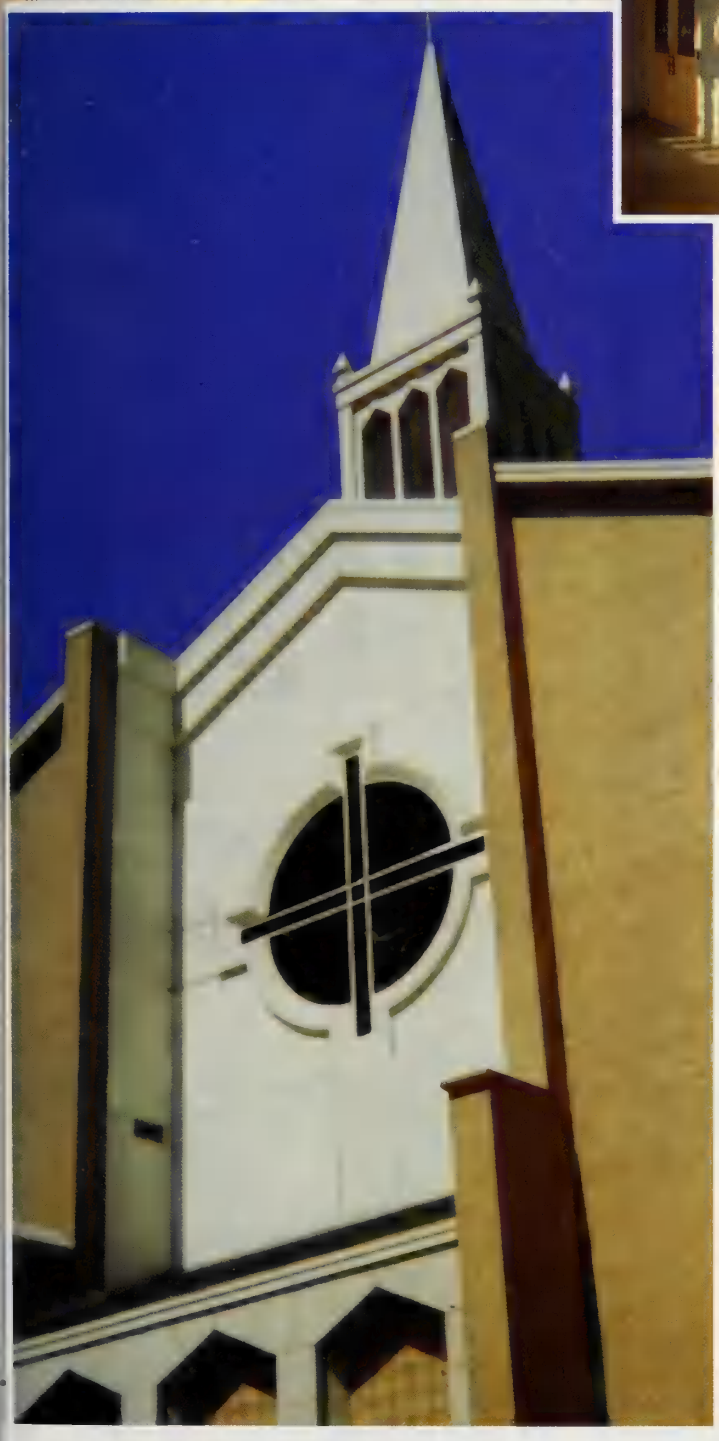
The Rome Prize
Deadline: Novermber 15
Qualified Architects, Designers, Landscape Architects, Composers, Scholars, and Visual Artists are invited to apply for this prestigious award that includes spending six months to two years in Rome. Visit www.aarome.org/prize for more information.

Jenn-Air Kitchen Competition
Deadline: December 28
The best new or remodeled kitchens that use Jenn-Air major appliances exclusively are eligible. A $10,000 cash prize and a trip to Milan are offered. Contact 612/375-8541 or vmelen@clynch.com.

Percent for the Arts: Bus Shelters
Deadline: February 15, 2002
The Bloomington Community Art Commission seeks proposals for three new bus shelters to be installed throughout the city. The award includes $2500 to each of the winning designs. Contact BloomingtonArt@aol.com for a brochure.

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For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

From the very beginning, archrecord2 has been more of a presence on architecturalrecord.com than it has been in the magazine, owing, of course, to space restrictions. This month's Design feature speaks to why. Two young architects covered in a mere two and a half pages? Can't be done, right? Well, it can, as long as it's only a tantalizing taste of the complete coverage to be found on the Web. Which is not to mention Work, Live, and Talk, all of which get their due online.

DESIGN

Young architects join the "fold."

On the surface, the work of Alice Min Soo Chun (and her frequent collaborator Timothy McDonald) has little to do with that of Theodore Galante. The most obvious connection would be that much of the most creative work of both architects remains unbuilt. But that would be to lump them in with a huge number of architects just starting off on their own.

One less obvious, but no less telling connection is a shared preoccupation with adaptable architecture, or more specifically, architecture that *folds*.

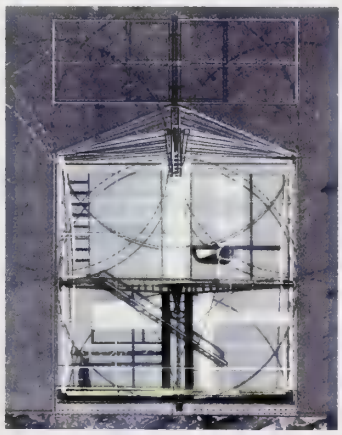
For example, take the Ethereal Theatre, designed by Chun and McDonald with a group of their students. Built as a design/build summer studio for the Philadelphia Fringe Festival, an annual drama event, the theater folds and unfolds to adapt to the various uses the Fringe performers might devise for it. And on top of that, the structure is portable, able to be moved about the city as the festival requires. A true design/build project, the theater has its construction documents literally scratched into its metal structure.





Ethereal Theatre, Philadelphia, 2000
Alice Chun and Timothy McDonald. Marshaling a group of students, the architects designed and built a portable outdoor theater for a drama group for $7,000.

Chun, whose father is a practicing architect in Seoul, South Korea, and whose mother is an artist, has an interest in architecture that will make a difference in the community. Philadelphia's Office of Housing and Community Development chose a design for affordable housing that she worked on with McDonald, Daniel Magno, and Wesley Wei. Chun also served as Project Architect for Wei's Pennsylvania House in Media, Penn. [APRIL 2001, page 154]. She has also taken it upon herself to design Explica, a prototype for a portable, foldable house that can be airlifted or driven to a site and unfolded *in situ*. Explica houses could be used to shelter victims of natural disasters, poor families, or even vacationers. Only the foundation of the structure



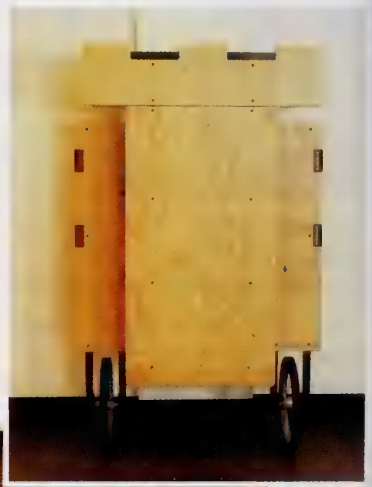
Explica House, unbuilt , 2001
Alice Chun. Explica is a prototype for low-cost foldable housing. The main walls fold out from a rear service wall. Only the foundation is prepared and built on site.



Brookside School Lockers, Bloomfield Hills, Mich., 1995
Theodore Galante, Architect. Galante realized a young student's need for individuality, and crafted 200 unique lockers to replace the proposed standard model.



Rose/Broder Residence, Center Harbor, N.H., 2001-2002
The Galante Architecture Studio. In this renovation project, a central wall divides public and private spaces. A copper cylinder, perforated by translucent tubes, serves as a beacon in the forest when the lights in the cylinder's rooms are illuminated.



continued from previous page would have to be prepared on-site, allowing for a high degree of adaptability.

Chun plans to continue her teaching at the University of Pennsylvania and Temple University, and has begun work on some larger-scale projects. But her true calling, as she sees it, is, like her idol Samuel Mockbee, to continue her work with architecture for the good of the people.

Like Chun, Theodore Galante went to work for his school after earning his master's degree. But where Chun went to work teaching, Galante started working as a designer, serving as project architect for a pedestrian bridge and some other work on the campus of the Cranbrook Academy of Art, his graduate alma mater. Eventually, he moved from Michigan to Cambridge, Mass., where he now runs his own studio. First, though, he worked for Peter Rose as site architect for the Brookside Elementary School.

When a contractor submitted a proposal for 200 standard-issue lockers for the school, Galante saw a conflict between the school's stated purpose of reinforcing the individuality of its students and the sameness of the proposed locker banks. So Galante proposed to design and fabricate the lockers himself. The resulting lockers, which are an abstraction of the building's plans, are each a unique creation. Galante also worked with Crossings Architecture to design his first folding project, a group of lunch tables for the school. Inspired by the tricycles that the students are riding just before lunch, and constrained by the area of the existing lunchroom, Galante and his associates designed tables that roll up



Children's Folding Lunch Tables, Bloomfield Hills, Mich., 1995
Theodore Galante Architect and Crossings Architecture. Tables reflect their intended occupants' playfulness with bicycle wheels.


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continued from previous page against the wall on bicycle wheels.

His biggest folding project, however, is his competition entry to design the Palos Verdes Art Center in California. Several of the buildings in Galante's campus-like proposal transform according to need, the most striking changeable element being a covered sculpture garden whose roof panels can flip up to form a billboard to advertise upcoming exhibitions, or, even serve as a drive-in movie theater.

Galante's practice appears to be on the verge of having two projects under construction. One, a residential renovation in the New Hampshire woods, works to capture views of the lake on which it sits. The other is an addition to a recreation center in Falmouth, Mass. The latter commission called for a box with a tar roof, but Galante managed to articulate the skin of the building with concrete boards and insert architecture by stealth. Nothing in these two designs or those on the boards at Alice Chun's studio shows any sign, however, of including any structures that fold. *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 for more projects from Alice Chun and Theodore Galante, including projects mentioned in this article.



Vawter/Lewrenzetti House, Keego Harbor, Mich., unbuilt
Theodore Galante, Architect. Designed as a lakeside retreat, this residence brings the lake right up to and then inside the house during periodic floods. The foundation is raised on piers.

LIVE

On the Side: Karin Pitman

It's no surprise that Karin Pitman, AIA, would spend some of her spare time painting. She was, after all, trained as an architect. The bigger surprise is that this planner and landscape architect from Albuquerque, N.M., should find release in poetry. "I don't write them too often," she says, "and mostly they are a way for me to get some of my emotions out when I'm not quite sure what's going on internally"

The poem (far right) was submitted to an art show as an explanation for the painting below. The requirements for submission said, according to Pitman, "'artists are encouraged to be creative in their responses'—as if artists wouldn't be creative. So I made my submission in more of a poetry form than in prose." *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 for more examples of the leisure activities of young architects and to learn how to submit yours.



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pulsing to a heartbeat
shaping us, sculpting, weaving life

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now cleansing, cleaning, baptizing
washing, refreshing, drawing us,
calling, always near

play with it, in it, on it, around it
oblivious to meaning, amused
entertained, it fills us, scares us
teaches us, eludes us

watching, pondering, cycles repeat
draws us, puzzles us, races by
crashes noise, change constant
forcing its way, carving out

leaving beauty, particles tiny
one by one, progress unseen
moment to moment, come, go
flooding, drying, ebb, flow

slowing, stagnant, winding by
scarce trickle, rushes through
repeating rhythm, precious drop
erasing before, but reminding

06 April 2000

TALK

Connect with your peers

The great cyber conversation at the TALK section of archrecord2 is still raging, and with a vengeance. We add a new topic to the hubbub this month, so stop by the site to let us know what you think: What books, magazines, and web sites are you reading these days? What do you think of them?

WORK

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A renaissance on the river in Saint Paul

Correspondent's File

By Bette Hammel

Minnesota's capital city, Saint Paul, is not unlike Pittsburgh in some ways. Both were once thriving cities with industry churning on their rivers, and both midsized cities were hard hit by the loss of much of that industry in the latter part of the 20th Century. Like Pittsburgh, Saint Paul is today in the midst of a renaissance in which the city's riverfront land is being reclaimed. St. Paulites are returning to the Mississippi.

With the 1997 "Saint Paul on the Mississippi Development Framework" plan as a basis, once-forlorn areas along Saint Paul's 27-mile-long riverfront are being rejuvenated. The plan touted far-reaching goals, spelling out ways to revive the downtown core, connect it to the river, and re-evoke the city's image as a thriving Mississippi River town. Results are now evident thanks to the leadership of Mayor Norm Coleman, dedicated business and community leaders, and planners and architects.

Cass Gilbert, Minnesota's most renown architect when he practiced in Saint Paul in the 1880s and 1890s, visualized a city plan with a crescent-shaped network of tree-lined avenues radiating from the capitol to the river. As the city grew, however, buildings were built with their backs toward the river and industrial pollution contaminated the water and land. By the early 1990s, Saint Paul's downtown core was losing out to the suburbs.

Alarmed civic leaders hired Toronto-based urban design and planning firm Urban Strategies to devise a plan. When Urban Strategies partner Ken Greenberg saw the city in 1994, he noted "a sense of disinvestment, of loss of jobs and population and a downtown seriously hollowed out."

Led by Greenberg (now with his own firm, Greenberg Consultants), Urban Strategies assembled a team that developed "a methodology that insisted that the 30 to 40 organizations already involved (in St. Paul's redevelopment) be a part of it," Greenberg said. Thousands of people participated, along with key members from city planning, parks and public works, and the mayor's office. An implementation agency, the Saint Paul Riverfront Corporation, was formed and the Saint Paul on the Mississippi Design Center, co-directed by Urban Strategies, was established to coordinate implementation of the design principles.

The plan spelled out a vision for downtown "as a system of interconnected mixed-use urban villages nestled in the lush green of a reforested river valley." Based on 10 principles of city-building, such as evoking a sense of place, restoring the urban ecology, and investment in the public realm, the plan targeted four city precincts for development. "We identified the crescent of opportunity in Cass Gilbert's grand axis extending from the state capitol to the river," Greenberg said.

As a further embellishment of the plan, the Riverfront Corporation introduced the Renaissance Project, which identified a network of connections between downtown, the neighborhoods and the river, streetscape improvements, as well as a strategy for public/private fundraising. More than three dozen building projects, valued at more than $190 million, have been built based on the framework principles.



The vision for the "Saint Paul on the Mississippi Development Framework."

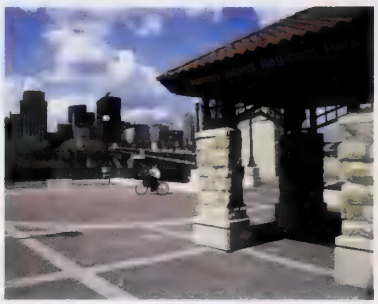
Framework for building

The first completed project considered a catalyst for future economic growth was the rebuilt Wabasha Street bridge, a vital link to Harriet Island (south of the Mississippi from downtown) and the West Side. Designed by Saint Paul Public Works and TKDA Architects and built in 1998, the wide-sweeping bridge is designed with extra-large sidewalks and overlook plazas. Greenberg called the bridge, "a great city balcony, a key turning point in the way the city thinks of itself."

While the bridge was under construction, major work was underway to reestablish 70-acre Harriet Island Regional Park as the city's gathering place, at a cost of $14.5 million. Although the island park's amenities had fallen into neglect over time, river quality had been improved considerably thanks to the city's decade-long investments in storm water management and flood control. By 1997, the river was the cleanest it had been in 50 years. When the new park opened in September, 2000, crowds

Bette Hammel is a Minnesota-based freelance journalist specializing in architecture.

enjoyed expressions of Harriet Island's rebirth, such as the River Walk paved with stepping stones funded by local families, a restored 1941 pavilion designed by Minnesota's first African-American architect, Clarence Wigington, and a terraced plaza leading directly down to the river.





Graves designs Target Stage

Inspired by the open lattice steel frame bridges that once spanned the river, Michael Graves, FAIA, in association with Saint Paul firm Rafferty Rafferty Tollefson Architects, designed an outdoor performing arts pavilion on Harriet Island called The Target Stage, completed this August. The pavilion has two red web steel-framed towers supporting a suspended roof of copper, drawing inspiration from the Saint Paul Cathedral dome. On the adjacent Raspberry Island, a curving glass arch structure called The Schubert Club Band Shell, by James Carpenter of New York, will be completed in spring 2002.

A crucial portion of the Saint Paul plan was construction of the $100 million Science Museum of Minnesota, the city's first public institution with direct access to the river, completed in late 1999. Designed by Ellerbe Becket, the seven-story brick, stone, and glass building cascades down to the riverfront through a series of indoor and outdoor stairways and terraces. At street level, a brick facade encases a new convertible dome Omnitheater.

The tenacious effort by The Design Center, Riverfront Corp. and City Hall are still paying off. More than 3,000 units of new housing have been built in accordance with the framework plan. While some say the Saint Paul plan is "Cass Gilbert Revisited," it's more than a simple grid of streets and boulevards. Greenberg said, "Thanks to the work of a lot of people, this city is transforming itself." ■



Wabasha Street Bridge (top left), Science Museum of Minnesota (top right), and the Target Stage (above).

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Critique

By Michael Sorkin

On the outskirts of Fairfield, Iowa, (a sign reads "A Cast of 10,000, Appearing as Themselves"), two vaguely Moghul office buildings slide by my car window. The buildings aren't far off the suburban norm. But something is clearly different; is it those unusual cupolas? Down the road, two gold domes announce the campus of the Maharishi University of Management, the heart of a thriving community of several thousand followers of the Maharishi Mahesh Yogi, guru to the Beatles, progenitor of Transcendental Meditation (TM), and the force behind the newly incorporated Vedic City, a 549-acre town under development a couple of miles away. This is Iowa's 950th city, its first new one in 19 years.

I first saw the Vedic City plan a few years ago and it was love at first sight. A "mandala" of 10 circular neighborhoods surrounded a circular center laced with canals and greenery. The geometry recalled Ebenezer Howard's blithe diagrams of the garden city, ideal cities of the Renaissance, Lebbeus Woods in the late '80s. Compact, pedestrian, green, neighborhood-based, with its own formal language, founded on a strong community predisposition to collective behavior, this seemed to be a utopia with legs.

Jonathan Lipman, AIA—lead architect for Maharishi Global Construction—was my indefatigable tour guide. He began by explicating the basic architectural principles that inform the process of "creating ideal housing in harmony with natural law." The intention (and I quote from a pamphlet on the subject) is "building for the health and happiness of everyone" by "connecting individual life with cosmic life, individual intelligence with cosmic intelligence." The problem is especially acute in architecture and planning because—of all the systems in the material work—this is one that fails to self-organize itself in harmony with universal systems.

The Veda rules

The guide for this elision is the *Sthapatya Veda*, one of 40 sacred Sanskrit texts that describe Hindu cosmology. The basic architectural principles are straightforward and include: an invariable eastern orientation for the main entrance; a central courtyard (*Brahmasthan*); a Vedic proportioning system based in nature; a proper *vastu* fence delineating the property; natural, nontoxic materials; a correct relation to existing topography and water bodies; and an appropriate deployment of uses within the structure. The mood of this Vedic regulation is similar to that of Feng Shui (not to mention the Sierra Club), sharing the idea that architecture is most socially effective when it aligns itself with larger cosmic forces, through its geometry, orientation, and construction.

On its face, the *Veda* seems to recapitulate the modernist injunction to incorporate *espace, soleil, verdure*. And the two share both a penchant for global reconstruction and a fondness for scientific language. The Maharishi argues that the state of transcendence achieved by meditation is a kind of royal road to oneness with the "unified field" described in contemporary physics. But the argument goes beyond such generalities. The eastern orientation is explained not simply via the poetry of the rising and shining sun but according to the idea that the thalamus—the joint between mind and body—fires its neurons at different rates according to orientation. East is best, helping to dissipate anger, fear, disease, and poverty.

Shortly after I returned to New York, I received a paper from Lipman in which he and his co-researchers seek to demonstrate that houses with an eastern entrance are dramatically less likely to be burgled than those facing south. Vedic design had a different kind of impact on the people who work at a small Shtapatyha-Veda office building constructed from a kit of varnished pre-cut logs. The building houses a company that photographs mass events—marathons, graduations, conventions, etc.—and markets individual shots to thousands of participants, a business requiring great accuracy and loads of computer technology. The owners raved about dramatic reduction in worker errors, the disappearance of bad language, a perceptible rise in levels of contentment, and a 42 percent increase in sales. I was to hear many such stories.

The benefits of the system are held to offer hope to humanity as a whole. The theory is that if the square root of one percent of a given population is engaged in mediation, the effects will carry beyond it: enough mediators, peace comes to the planet. This has given rise to a plan to construct a huge TM community in every second time zone, housed in 12 mixed-use skyscrapers, each accommodating 100,000 meditators. Plans for the first of these (designed with Minoru Yamaski's office) are underway for a site in São Paulo. And to link them all, the Maharishi is in the process of forming a virtual country, a single conceptual and spiritual space inhabited by his multinational followers, a truly contemporary conceit.



That Vedic look: the Wynne House by Henry Clark.

I visited a dozen houses in and around Fairfield, ranging in size from cottages to mansions. All share the necessary Vedic features and are impeccably orderly and lovingly built. All are constructed in a style that is unexceptionally comfortable and suburban, although Lipman and other local architects argue that the *Veda* specifies no particular style. The designers are simply responding to the vernacular, fitting in to their

adoptive community. Of course, there are special features. Switching on the jumbo TV in one house, I found the Maharishi's own cable channel. In several bedrooms, faint sounds of *ragas* came from a closed-circuit system playing in the closet. And, always, there was a meditation room, sparsely furnished and lined with portraits of the benignly smiling Maharishi.

Wright meets the Maharishi

Lipman, the author of a monograph on Wright's Johnson Wax Building, showed me his own design for the Joel and Joy Hirshberg house, modeled on Wright's 1902 Willits House in Highland Park and retaining a Wrightian sense of flow. In the room of an adolescent son is a wall full of academic medals, (the incredibly successful students at the K-12 school on campus are presented as proof of TM's power), a homemade robot and a bar-mitzvah picture. TM *supplements* religion: Joy Hirshberg, for example, is president of the local synagogue, founded to accommodate a Jewish population newly arrived to live the Vedic lifestyle.

Mandala One is the most well-advanced of the neighborhoods, its initial houses facing east on smallish lots with a scraggly green at their center, awaiting landscaping. The houses, designed by a number of architects, are stylistically similar but by no means identical and are unified by a collectively taken decision to clad their steeply pitched roofs in uniform (and handsome) concrete shingles. Behind Mandala One lies Vedic City's principle civic monument, the Observatory, a miniature of the famous Jantar Mantar in Jaipur, India, the touchstone for orienting everything. The Observatory is also a version of the original radiating town plan, an abstraction and measure of its planetary alignments. It sits comfortably with the native style of abstraction, the Jeffersonian grid that subdivides the larger landscape.

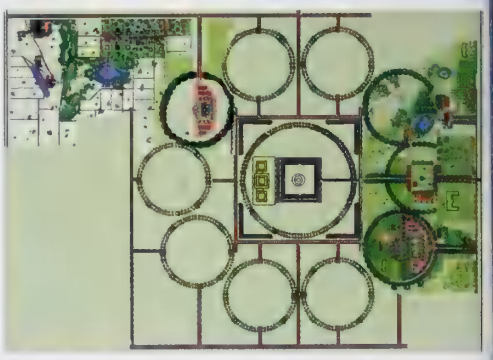
Both sacred and secular grids claim to be rational and foreground a belief in evidence, in scientific method and analysis. Both extend patterns dating back millennia and expressed in a wide variety of cultural arrangements. And, both easily measure subdivisions of property. Vedic City has no more collectivized property than normal arrangements: like the Maharishi's new country, the collective is virtual. The city is being built by developers for homeowners with all the financial and regulatory arrangements of more standard-issue versions of the American Dream. This is a private community, engineered via the same system of codes, covenants, and restrictions as anyplace else.

One of Vedic City's first developers is Rogers Badgett, an ex-broker and director of The Raj, a tranquil ayurvedic health spa. Described in promotional literature as French Country in style, it is, vaguely. Badgett, who came to TM after seeing the Maharishi on Johnny Carson, in his native Kentucky, is a decade or so older than most of the people I met in leadership roles. But he reinforced my sense that these people come from a very specific cultural time and place, boomers who discovered TM in its '70s heyday. Under their business suits, these were utopians I could recognize.

Eco-design; no utility bills

No such suit for John Freeberg, who greeted me with a cheery, "Seen enough symmetry yet?" We jawed about the seeming inflexibility of the Sthapatya strictures as a medium of formal invention as we drove to the site of "Abundance Eco Village," of which he is codeveloper. We began, though, with a tour of a straw-bale house under construction by a colleague on a nearby hillock. Nicely crafted and surrounded with various solar, wind, and other natural technologies and appliances, the place had a familiar, comfortable feel. And my conversation with Freeberg—on energy generation, insulation, solar gain, organic agriculture, and construction technology—was one I'd had in various settings and guises many times before. The wrinkle, of course, is the *Veda*, which allowed for our discussion of morphological strategies for combining southern solar orientation with Vedic preferences for the east.





The Hirshberg Residence by Jonathan Lipman (top); master plan for Vedic City (above).

Although it will soon hold 32 houses, the Eco Village—"America's First Sustainable Community"—consists now only of lightly rolling farmland just outside Vedic City, two greenhouses, a couple of new ponds, and extensive planting to begin a permaculture. Advertising boasts "all the benefits of proper orientation and Vedic proportions enhanced by the latest in ecological design" with "cost similar to other developments but no utility bills."

Later, in the cafeteria at the University, I looked around the room at my fellow diners to see if I could discover anything unusual in their faces, dress, or attitudes. I couldn't. The campus itself had been inherited from a college gone bust and had been augmented over the years by new construction in Vedic style as well as by a series of "rectifications" of existing buildings to bring them into alignment with basic principles. Even the two domes were being corrected, their round bases being squared off to reflect current interpretations of the *Veda*. Other additions included a gigantic Butler building for 7000 meditators, a mobile-home park, and several more modest academic structures. A master plan under development aims to address what is most strikingly lacking at both the university and at Vedic City: a coherent approach to the integration of landscape and agronomy with urbanism.

After lunch, we met with Alaric Arenander, a neuorphysiologist and director of the Brain Research Institute. He ushered us into a classroom for a brief introduction to the Vedic science of mind, clearly not the first time he'd diagrammed consciousness for skeptical tourists. The chalk-talk covered territory with which I had grown familiar over my two days: TM was a route to a pure consciousness that created a condition of oneness with the unified field. The architecture of the brain matches the architecture of consciousness, providing the key for social and individual "harmonization." Back in his office, Arenander fired up a topographic 3-D rendering of a rotating brain on his laptop,



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highlighting those areas engaged during TM. Piled everywhere were stacks of print-outs of brainwaves, and on the wall was a poster comparing normal and "criminal" brains. After I returned home, he e-mailed me a paper about the effects of TM on violence. The paper's conclusion: a regular program of TM in the schools will dramatically reduce violence and stress and markedly improve creativity and intellectual performance, "good news to those who would like to apply simple solutions to complex social problems."

Utopias everywhere

Fairfield sits at a nexus of such intentions. Due east and just over the Mississippi lies Nauvoo, the first Mormon capital. Up the road is Iowa City, great college town. Mennonites and Shakers are thick on the roadways in their horses and buggies. Hasidic Jews, seeking community, have taken over Postville, Iowa. The countryside itself is a point grid of perfect farmsteads, small sustainable self-contained utopias, one-family-large, the *original* dream. Even the multinational corporations build utopias, the communities of franchises at exits off the interstate.

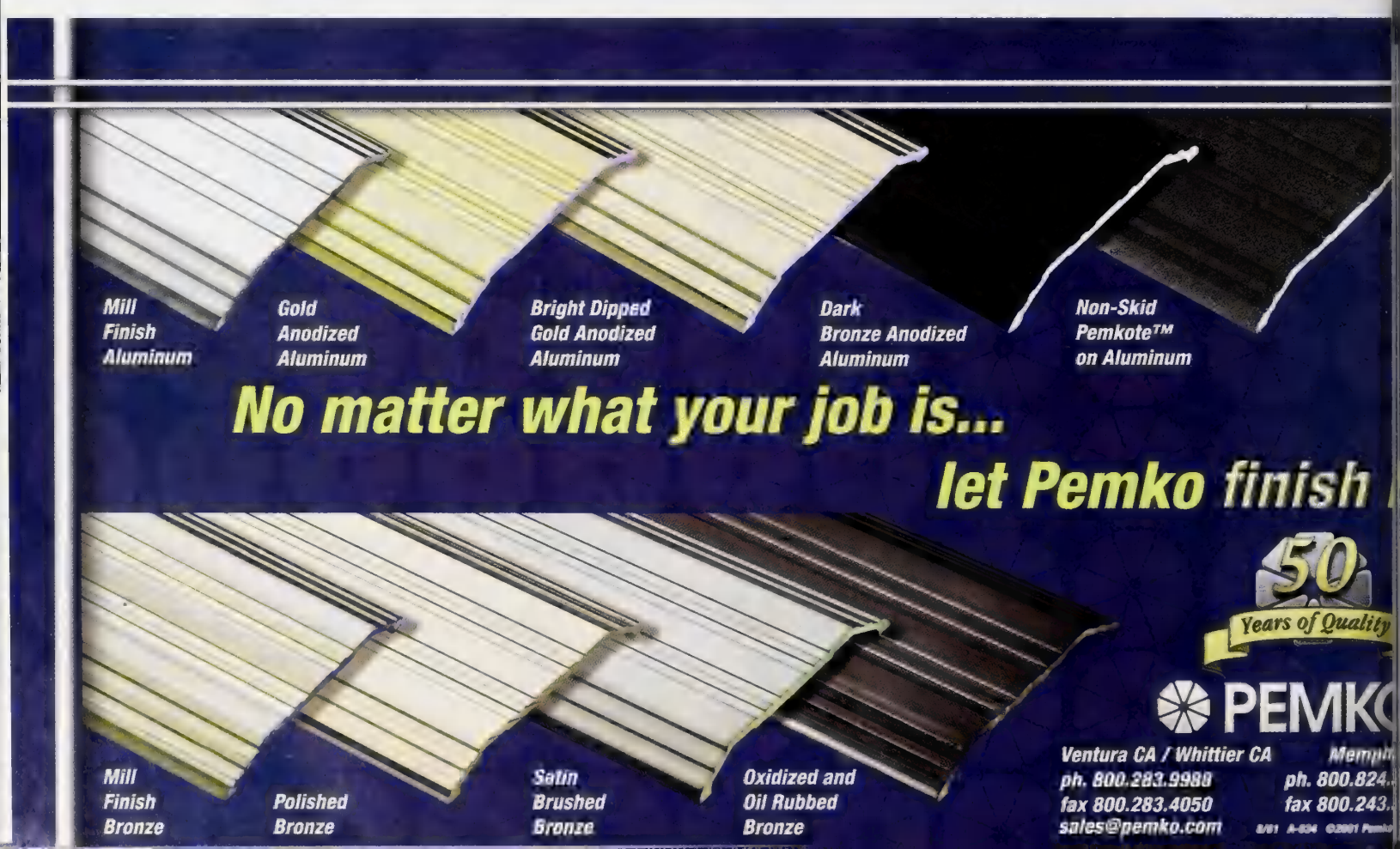
Most legendary of these communities is Amana. Founded in 1854 by a group of German religious communitarians, the Amana Colony grew into a self-supporting network of six villages with an almost completely closed economy and all property held communally. This system lasted until the "Great Change" of 1932 when—under pressure of shrinking isolation, the Depression, and red-baiting—the community elected to join the capitalist, secular system that surrounded it. But the historic architectures and affinities remained and over 90 percent of the community is still occupied by descendants of the original colonists.

It's a tender time to visit Amana, which is well into the process of morphing into the Amana Experience. Amana-style restaurants abound, all serving "family-style," evoking the original communal kitchens of the colony. The old streets are lined with fudge stores and craft shops. Signs are in German. People are in costume. Amana is becoming a theme park, America's most invigorated and contemporary style of utopia.

Vedic City is also to have its theme park, Maharishi Veda Land, an indoor sequence of hi-tech illusionistic tableaux designed by the magician Doug Henning. Its intent is didactic and the literature promises that visitors will leave *enlightened*. The theme park style permeates Vedic City, with its Vedic Golf Course and watergarden, its spray of hotels, its Vedic health spa, its precise, teleological, planning. But does this invalidate it in any way? Was I wrong to find it very pleasant?

The bad book on theming—from Disneyland to the ersatz small towns of the New Urbanists—is that it's mendacious, simulated architecture, trickery to conduce consumer behavior, inauthentic cultural expression. Of course, one person's theme is another's cultural motif: style is really irrelevant. More problematic is the inviolable character of the originating sacred text. Whether Bible, Constitution, Veda, Vitruvius, or the Building Code, strictures run the risk of being consumed uncritically and suppressing invention and democracy. Like restrictive covenants and homeowner associations, they can become the medium of excluding the Other.

Vedic City seems much better than this. The cosmology is innocent and the practices useful and successful. Even the grandiosity seems benign: all prophets use hyperbole to make their points. The architectural results, if sometimes veering towards kitsch, are extremely livable and increasingly engage vital questions of sustainability and the environment. Vedic City has something to teach planning beyond pure tolerance. And the message—peace, love, understanding, and less stress—ain't bad. You got a problem with that? ■



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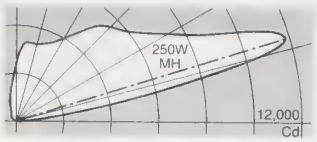


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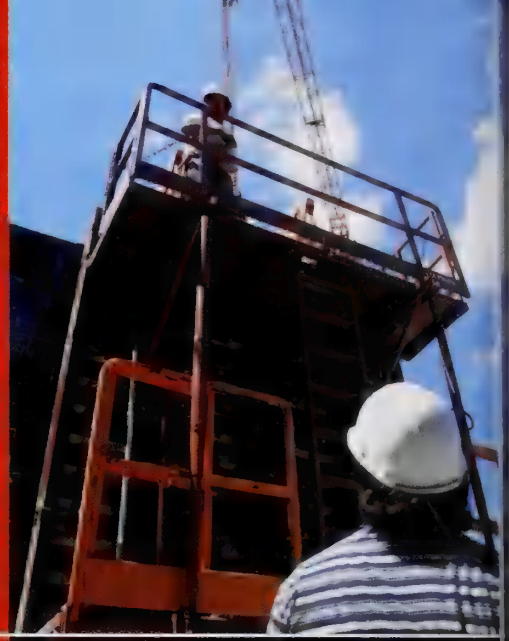


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CIRCLE 39 ON INQUIRY CARD

Establishing your design firm as a values-based organization

Practice Matters

By Paul Jorgensen, AIA

At its best, design can be a wonderful, joint experience in which people with many different skills work together to overcome each project's special challenges; various ideas are developed, and things get built. The experience should be very satisfying. But, often it isn't. Why? Because some firms capable of designing good buildings can be difficult places to work. Good and bad organizations come in all shapes and sizes, although it has been my observation that the larger the firm, the greater the risk that those running it will become preoccupied with its form. They often put more structure, rules, and procedures in place to govern those who are actually in the trenches doing the work, while losing track of the values and mission that originally motivated its formation. The resulting bureaucracy that emerges may make managers less concerned with solving their client's problems, further weakening the firm's effectiveness.

Unfortunately, architects have little training in the dynamics of organizations and how to create, manage or survive in them. Once on the job, we either learn to adapt to the internal logic of a particular workplace or end up leaving.

Values-based organizations

Does this mean that organizational problems cannot be overcome? No. The real problem is that often the way firms are organized does not emphasize a core philosophy or system of values. Organizational structure in itself is not a very good motivator for human beings.

Firms are a lot like people: Before you can be effective in life you must know who you are: what you believe in; what motivates you, and what you will do for money and what you will not. Firms are the same. A firm defines what it is by being concerned about some things, and not about others. It needs a reason for being—something great must motivate it to succeed. Mere survival is not a reason for being, nor is making money.

For example, a group that decides it wants to design leading-edge biotech research facilities has a reason for being. Being the best provides motivation. Two people striking out on their own in an effort to succeed do not necessarily have a concept that will make them successful. But if their ambition is to find innovative technical solutions while exploring new design directions for public sector clients, they will have a more directed vision and better chance for success.

People have dreams and emotions; organizational structures do not. Strongly-held beliefs—values—are the foundation of an effective organization. Firm leaders and employees who have ideas and aspirations in common can generate tremendous energy. For people starting out on their careers or seeking a new job, the best strategy is to try to find an employer whose beliefs and values are similar to their own.

Organizational styles

Since architects create structures, they seem to gravitate toward structure-like business models. Some firms are organized like tripods, held aloft by design, management, and marketing. Another structure is matrix-like: principals oversee project managers who, in turn, oversee the different departments supplying staff to the project. Other firms are organized into "pods"—studios that



market and produce their own work. Sometimes each studio is associated with a particular building type. Other firms use a market segment approach as an overlay to a firm-matrix organization.

Finally, there are firms built around the strong values, ambitions and capabilities of a single person. A firm like this can be very clear about what it stands for because the principal's values are felt all through the workplace.

When firms lose their way

Growth and change make many firms forget their original mission and values. For example, many design firms have experienced tremendous growth over the last few years. When their workloads increased, they added staff to one office, or additional offices were opened or acquired. When a firm is kept alive and growing over a long period of time, it is almost inevitable that the original reasons and passions upon which the firm is based are transformed gradually through its history. New people bring new ideas, for better or worse, so it is ironic but true that a firm without an eye to transformation and change can lose its original vitality through success and longevity.

When change occurs and old methods of organizing and accomplishing work break down, it is natural to attack these problems. But, this is also the time when the philosophy and values underpinning the firm are at their most vulnerable if they are not considered. Working in both large and small firms, I have observed that the larger the company, the more a firm's structure and organization will be tinkered with. Meddling with organization charts, rules, and procedures does not usually enhance a firm's vitality. Usually, these tinkerings have the most effect on the very same upper-level managers who are mak-

During his 25-year career, Paul Jorgensen, AIA, has worked with some of the largest AE firms in the U.S. He can be reached at pjaia@worldnet.att.net

ing the changes; that is, those whose careers have revolved around creating rules and changing organizational matrices rather than interacting with clients and working on projects.

Any firm that becomes sidetracked from its values base can be full of conflict and tension. Managers compound things by improvising solutions to long-term problems. Internal rules and policies are covered over by a veneer of political correctness publicly, but regarded privately with cynicism. New hires in such firms immediately learn that things get done in two ways: the way the organizational chart says they get done and the way they really get done. These contradictions create confusion that can put employees and employers in conflict, something that few of the best talent and brightest people want to be part of for very long.

WHEN A FIRM BECOMES SUCCESSFUL, IT MAY FORGET ITS ORIGINAL MISSION.

A values-based system

Conflict can be minimized if the leaders of a firm are aware of the pitfalls of unchecked growth, particularly when it begins to cloud the core ideas that were behind the founding of the firm. Some firms have found it helpful to hold retreats specifically designed to reevaluate the firm's purpose, expanding these ideas and devising means of expressing them to the rest of the organization, not just in words but in actions too.

The firm's leaders must live the core ideals they set forth and show their commitment to them. If leaders expect one thing of employees and do something else, their efforts at establishing and maintaining a philosophical basis for the existence of the firm will be in vain. When the leaders of a firm articulate what they believe in, they can also better test whether prospective employees fit in with the firm's approach to practice—strong values will attract like minds. Expressing these things, in value and action statements, is useful because these become the measure of how things are done.

Value and action statements

Each value statement is part of a building block that expresses part of the firm's overall philosophy. What they all have in common is that they describe beliefs, behaviors, and that they engage and empower people at all levels in the firm, not just the managers. They should also foster open communications.

When creating values statements, it is also important to keep in mind that most people need and want something more from their job than a paycheck. People want to believe in what they do, to believe in what their company stands for and the work it produces. They want to do a good job and help their company be successful. They want to be encouraged, recognized, and treated fairly, in an environment where they are not threatened, but encouraged.

Examples of values statements that might apply to firms of all shapes and sizes could include many things, such as the following:

- We care about our clients and each other. We want to be proud of the work we do.
- We will look for the right answer, not just the first answer. We will look for innovative solutions in design and the use of technology.
- Everyone contributes to our success, and shares in its rewards. We will help each other.
- I will help do what needs to be done. We will work hard, yet still have fun.
- No dogs are allowed in the office, that is, no clients, no jobs, and no coworkers. No children are allowed—we're all adults, and we will act like it.
- If an action is unacceptable ethically, we won't take it. The truth matters.
- If something troubles you, speak up for the good of everyone. If you don't know what to do, talk to someone. If you don't understand, ask questions.
- We are responsible for the quality of the buildings we produce.
- If a design or detail is substandard and needs to be fixed, make an issue of it, but also be prepared to help fix it.
- We are in business to make money, and money is good, but it will not make us compromise our standards.
- More work is good—we need to market even though everyone is busy.
- We will share information about the projects and the firm with each other but not with outsiders.
- Change will never go away and we will always continue to examine and embrace it.

Your firm's values statements

Your own firm's list of values statements will differ from this one, depending upon who you are, and what kind of firm you are building. I have been successful in using such lists as mottoes for firms I have managed, to help vocalize and clarify values statements and build firm culture.

The most important thing that values statements can do is to empower workers. This gives them a sense of individual responsibility for their actions, while emphasizing that they have a responsibility to the firm and the client. Sharing responsibility is the key to encouraging people to act individually, as well as being fertile ground for developing a firm's future leaders. When successful, employees will act on these principles even when the firm's leaders are not present.

Values statements that encourage open communication also help with conflict resolution. When conflicts do arise, as they will, discussions with an employee can center on individual responsibility, not just on whether the firm's procedures have been acted upon to the letter.

The great benefit of an open system like this is that there is constant feedback about what is working and what is not, and this allows course corrections to be made more easily. When your managers and employees can discuss problems openly, you can find potential solutions that fit your specific organization. Of course, this also requires leaders to be leaders, not dictators or aristocrats.

The ideas expressed here are not meant to diminish the fact that even values-based organizations need structure; however, this can be an overlay which defines how certain functions and responsibilities are assigned. As the organization changes, the responsibilities of different employees can be re- evaluated.

Responsibilities don't always have to be distributed purely on the basis of rank. Instead they can be parceled out according to each individual's area of expertise. The focus of the practice can then remain on its mission and its work for clients, rather than on making its employees conform to rules. Remember, a value-based organization cannot be expected to flourish in a highly-structured setting dominated by rules and procedures.

The acid test

When I first became a manager, I reflected on why I loved working at some firms and others were torture, as well as and why people were energized in some firms and cynical and demotivated in others. The difference seemed to be that some organizations emphasized structure and rules of bureaucracy while others seemed to motivate people with a sense of purpose—it is as simple as the difference between control and leadership. My personal observation is that when things are working well in a firm, its mission and direction will be clear. The only way you can test them for yourself is to question yourself, your employees, and look at the resulting work all of you produce. ■

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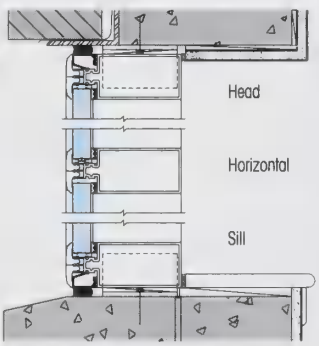
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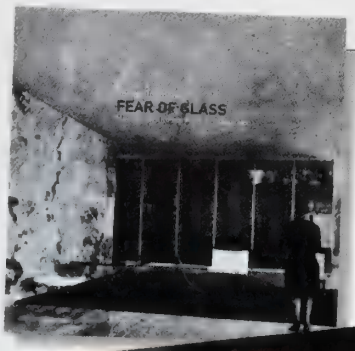
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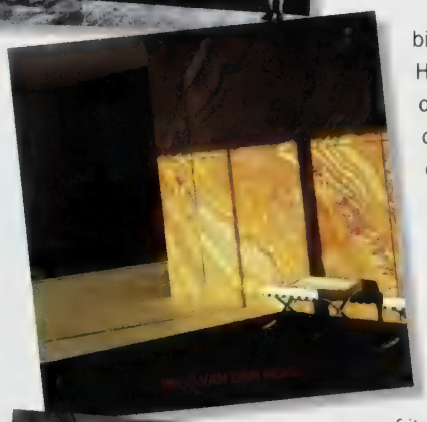
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Mies is back and a new group of books explores his designs and legacy

Books

By Stanley Abercrombie, FAIA







Mies van der Rohe, *by Yehuda E. Safran. Lisbon: Editorial Blau, 2000, 214 pages, $79.95 (clothbound), $60 (paper).*
West Meets East–Mies van der Rohe, *by Werner Blaser. Basel: Birkhauser, 2001, distributed in the U.S. by Princeton Architectural Press, New York, 135 pages, $60.*
Fear of Glass: Mies van der Rohe's Pavilion in Barcelona, *by Josep Quetglas. Basel: Birkhauser, 2001, distributed in the U.S. by Princeton Architectural Press, New York, 200 pages, $25 (paper).*

As we all know, not one but two mammoth Mies van der Rohe exhibitions have recently opened in New York: *Mies in Berlin* at the Museum of Modern Art and *Mies in America* at the Whitney. This magazine's May issue presented excerpts from the catalogs of both shows. "No longer seen as a purely historical figure," the editors noted, "Mies is now viewed as vital to contemporary design." As would be expected in such a situation, the two catalogs are not alone in their attempts to remeasure the giant; here are three more. In different ways, all three stretch our understanding of Mies in new directions.

The English/Portuguese monograph by Yehuda Safran, described as an architecture/art critic in Paris and New York, is the most conventionally organized of the three, consisting of a brief essay followed by a description of 21 buildings, an illustrated chronology of buildings and projects, a biographical note, and a bibliography. But the buildings chosen include some surprises. All three of the monographs that established the Mies canon—the one by Philip Johnson in 1947 and the ones by Peter Blake and Arthur Drexler in 1960—skipped quickly through the earliest work and gave their first full attention to the revolutionary glass skyscraper schemes of 1919 and 1920-21. Safran, on the other hand, devotes seven pages to three of Mies' pre-1919 houses and ignores all his unbuilt projects.

Safran's essay also strays a bit beyond the usual territory. He introduces us to stage designer Adolphe Appia, described as "the crucial, albeit completely ignored, inspiration for the abstract dimensions of Mies' later work." The four Appia sketches for scenery included by Safran display a poignant emptiness, but the implied connection to Mies is unsubstantiated. Regardless of its own speculative nature, the essay builds to this lyrico-dramatic conclusion: "The truth of Mies' work lies, then, in the manifesting of the truth which transcends the work.... Mies and Appia were instruments on which the wind of unsuspected spaces played its first tentative tunes."

Werner Blaser's *West Meets East* is a revised and considerably enlarged version of an interesting book first published in 1996. Having studied and worked with Mies and having written books about Chinese architecture, Japanese architecture, and Miesian architecture (including separate volumes on the Farnsworth house (1999), the Lake Shore Drive apartments (2000), and Crown Hall (2001), as well as the 1965 *Mies van der Rohe—The Art of Structure*, and the 1980 *Mies van der Rohe—Furniture and Interiors*), Blaser seems uniquely qualified to compare Mies' design with the design of the Far East. He does not suggest any Miesian dependence on Eastern design or thought, but simply "an extraordinary similarity." Texts by Blaser and Johannes Malms, in both English and German, are followed by a portfolio of visual analogies.

In his introduction to Josep Quetglas' *Fear of Glass*, Rafael Moneo writes that "The reader should not expect to find in Quetglas' work the hackneyed interpretations of many ... critics, invariably centered on spatial flow, on the presence of Neoplasticism, on the distinction between structural and merely formal elements.... For Quetglas, the [Barcelona] pavilion is, simply, a representation of the Germany that rose from the ashes after the First World War." For many of us, of course, those "hackneyed" aspects remain interesting, but it is nevertheless tonic to approach the pavilion from another angle.

Quetglas imagines Mies' asking, "What should the pavilion resemble if it is to resemble—to stand for—Germany?" Part of the author's answer is that in 1929 "English work, underground and sooty, had come to an end. German work was born: modernized, transparent, crystalline, electric." What follows includes comparisons of the pavilion with the Doric temple, the positing of reflectivity as the criterion for materials selection, references to Bruno Taut's 1914 Glass House and Eisenstein's 1925

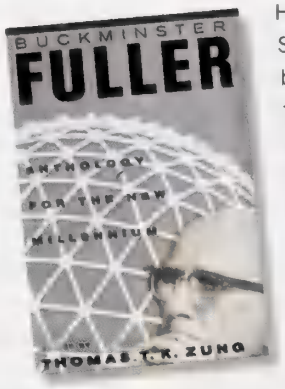
Stanley Abercrombie, FAIA, is a former editor of Interior Design *magazine who is now based in Sonoma, Calif.*

Books

Potemkin, and much more. Parts of this multilayered fantasia on the pavilion—including, for this reader, its title—are opaque, but redeemingly large parts of it are fresh, provocative, and smart.

Buckminster Fuller: Anthology for the New Millennium, *edited by Thomas T. K. Zung. New York: St. Martin's Press, 2001, 388 pages, $33.*

"Bucky" Fuller was a giant figure through all the middle decades of the 20th century, celebrated as an architect, engineer, and inventor, and celebrated even more for his independent thinking about the future of what he called "Spaceship Earth." He was a prodigious writer, a marathon lecturer, and an indefatigable world traveler. He developed mass-producible housing, a three-legged car, a nondistorting flat map of the globe, and a two-piece bathroom. He worried about how much our buildings weigh.



Yet since his death in 1983, his reputation has deflated. Today everyone knows what a geodesic dome is, but few remember its creator. No, kids, it wasn't Walt Disney. This eclipse of awareness is not only sad but troublesome, for we—and our fragile spaceship—have never needed Bucky's vision more than we do now. Architect Thomas T. K. Zung, who was a partner with Bucky in the firm of Buckminster Fuller, Sadao and Zung Architects, comes to the rescue with this newly compiled collection of Bucky's writings. As Zung writes in his introduction, "The need for the public, especially the young, to discover his thinking anew impelled me to take on this anthology."

Zung has taken it on in an interesting way. Rather than strictly imposing his own opinion about which passages are most relevant today, he has made a rather catholic selection of 20 chapters, each from a different one of Bucky's many books. And each is introduced with a brief essay by a different contributor. Among these are: architects Lord Norman Foster, Charles Correa, and Shoji Sadao (another former partner); writers Calvin Tomkins and Sir Arthur C. Clarke; Dr. Arthur L. Loeb of Harvard and Martin Myerson of the University of Pennsylvania; and actresses Valerie Harper and Marian Seldes. These have not been added solely for their celebrity; each of them knew Bucky or had some close connection with his work.

Zung's book closes with several interesting appendices, the last of which quotes Bucky, not in reference to some invention or scientific insight, but in reference to our own future: "Whether humanity is to continue and comprehensively prosper … depends entirely on the integrity of human individuals and not on their political and economic systems." I, for one, believe him. *Reviewed by Stanley Abercrombie*

The Wittgenstein House, *by Bernhard Leitner. New York: Princeton Architectural Press, 190 pages, $45.*

Between 1926 and 1928 the philosopher Ludwig Wittgenstein and the architect Paul Engelmann designed and built a house for Wittgenstein's sister in Vienna. Although he had no training and this would be his sole architectural venture, Wittgenstein dominated the undertaking and re-created himself in the process. He designed everything with fanatical exactitude. Every design decision is a reflection of the



whole—everything adds up to a larger picture of Wittgenstein's intentions. Double sets of doors that open two ways alter and redefine what it means to enter or leave a room. Metal window shades that pull up from the floor below (they're on counterweights in the basement) change our experience of light and our notions of privacy. When a locksmith asked, "does a millimeter here or there really matter so much to you," Wittgenstein roared, "Yes!" His sister admitted that her house was "more a dwelling for the gods than for a small mortal like me." Sadly, as beautiful as the results are, they have rarely been seen or fully appreciated. Bernhard Leitner tours us through the house, allowing it to reveal itself in time. He collects a variety of views in photographs and texts that together demonstrate a unique vision. It is a book worthy of its subject.

The book's structure might have pleased even Wittgenstein. Four gatefolds open to reveal photos of the same doors or windows open, partially opened, and closed. Several pages are reproductions of a small pocket photo album, blank facing pages and all, so that we feel we are holding the album in our hands or looking over Wittgenstein's shoulder as he works. There are color photographs that show heretofore-unseen layers of paint recently discovered during restoration, showing Wittgenstein's careful attention to the color of what we call "white."

For 30 years the author photographed and documented the structure and played a significant role in saving it from destruction and restoring it. Parts of the text are about that history. You needn't be familiar with Wittgenstein's thought to appreciate his book. Thanks to Leitner, Wittgenstein's venture into architecture may finally get the appreciation it deserves. *Reviewed by Roger Shepherd*

Shigeru Ban, *by Emilio Ambasz and Shigeru Ban. New York: Princeton Architectural Press, 2001, 176 pages, $35.*

Some of his buildings have fluttering "curtain walls." In others he uses sturdy paper tubes as structural members or furniture as walls. Nearly always his designs appear almost weightless and brushed with light. Influenced initially by the New York Five, especially John Hejduk, Shigeru



Ban translates Japanese architectural history in a very contemporary manner, as Emilio Ambasz points out in his forward. Ban stands out for his talent at turning banal materials into dignified structural elements, for his social commitment—his housing for disaster victims in Rwanda and Kobe comes to mind—and for his self-effacement. This handsome volume shows his early work, furniture and exhibition design, case study houses, private residences, paper architecture, and public buildings. *Reviewed by Andrea Oppenheimer Dean*



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Snapshot





Making home between a rock and a hard place

By Soren Larson

If it's known at all, the bucolic island of Favignana, a mile off the Sicilian coast, is known for the traditional *tonnara*—the annual killing of bluefin tuna. Local fishermen, who have been enacting this ritual since the Stone Age (local cave paintings confirm it), trap the fish as they migrate through this part of the Mediterranean and spear them in a bloody spectacle enjoyed by the island's entire population of about 3,000.

Hardly the place to find a mainland architect such as Maurizio Anastasi. A recent arrival to this hilly paradise, Anastasi comes from Rome but respects local traditions. When he bought a 20-acre parcel five years ago, he didn't try to leave his own mark on the landscape; instead, he built into the land—adapting an ancient stone quarry and converting it into a rugged series of compartments that he calls home.

The quarry contains marblelike stone called calcare, which Anastasi describes as "very hard, but very easy to work with," used to build cities even before the Romans started hauling it off during the Punic Wars. Over the last





few, neglected decades, local vegetation and an untended orchard of pears, pomegranates, and apples took root among the stones. Anastasi kept the fruit trees, installed an unobtrusive plumbing system, and went to work on the array of carved-out stone formations. He fortified existing caverns with iron and placed glass in available openings to make windows. Then he dug new caves into the rock, punching out holes to let the light in, and added a stone-and-iron tower for his central chamber, where he watches the sunrise from his bed.

Though the work was extensive, Anastasi kept the plans simple. Some of the bedrooms are nothing more than a room with a bed—while others have an artifact or two brought back from South America or Africa. He procured all his materials from Palermo, Sicily, and used locals to help with the construction.

"It's a house, but it's not one building. It's basically all these holes," Anastasi says, counting nine bedrooms, two living rooms, a kitchen in the central tower, and two more outside in the garden. The bulk of his home is below grade, but Anastasi says "you never get a sense of darkness. It's very big and spaced out, and everything gets a lot of sun."

Anastasi has been an architect for 20 years, having studied in Rome, and then worked in Brazil and South Africa before returning to Italy. Now that he's on Favignana, he takes the ferry to visit clients on the mainland, but more often he's wandering his tranquil gardens or strolling to the sea. "Our lives are so busy, so frantic," he says. "The idea here is to live without stress. This is wonderful, especially if you're an artist. No smog, no traffic . . . you only have the ocean, you have the sun. You can express 100 percent of your creativity. I don't feel isolated at all, because now that my friends know about it, people are coming to visit me all the time." ■



Indoors and out, the architect kept it simple: a swimming pool (opposite, top), a bedroom (opposite, bottom) and a room with a view (this page).

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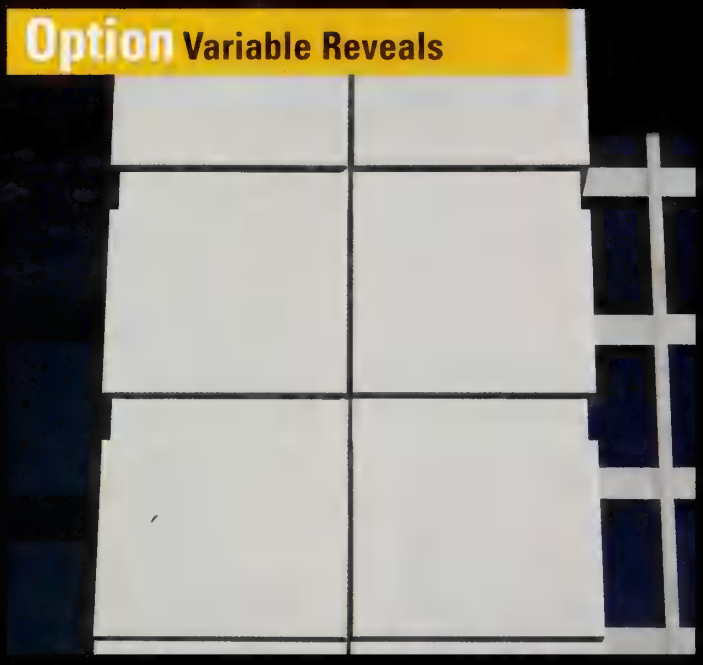
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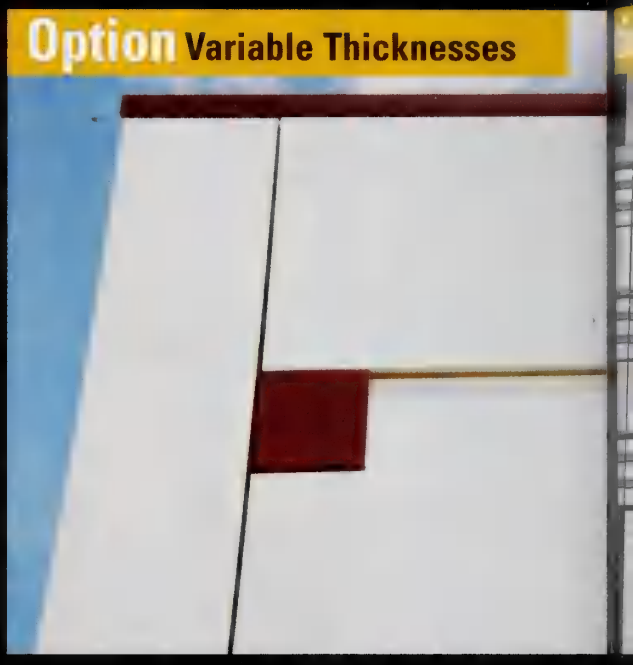
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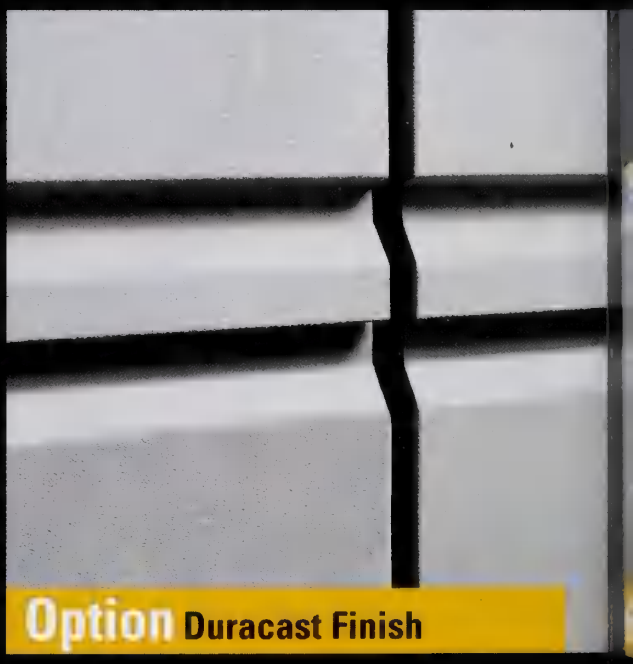
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ROOM in a BOX

The intrigue with compact and convertible interiors

By Elisheva Levi



PHOTOGRAPHY: © TOM POWEL (PRIVATE COLLECTION, COURTESY SPERONE WESTWATER, NY)



Room-in-a-box is space with a sense of humor. At once contained and container, it can sometimes become an interior within an interior. Presenting itself unsuspectingly as a simple box—say, a cabinet, valise, mobile compartment, or trunk—it opens, allowing the elements of a full-scale room to unfold, slide, or spring from (and back into) it. The logic of room-in-a-box spans the practical to the whimsical as it coyly manipulates space and function. With complex interlocking parts, these contraptions delight in organizational efficiency. Like Chinese puzzles, they beckon us to actively participate and investigate their strange hinges, slits, and openings in order to expose the inner workings—and enact the spatial game of "now you see it, now you don't."

This ingenuity traces its historical lineage through the early 20th-Century Murphy bed, steamer trunk, Pullman kitchen, and, later, the convertible sofa bed. In that spirit, room-in-a-box compacts multiple functions into a single object, prompting the question: Is it furniture at the scale of architecture or architecture at the scale of furniture?

Exploring this conundrum, the late Italian designer Joe Colombo in the 1960s and '70s created objectlike "microenvironments," such as the Mini-Kitchen (page 92), which streamlined domestic activity. More recently, Vito Acconci's "Car Hotel" (page 94) similarly distills habitation to a set of bare essentials—but flaunts the limits of real-world practicality.

Taking a more "Maximalist" approach, Toland Grinnell's Machine for Living (this spread) juxtaposes a panoply of related and seemingly unrelated activities—including a hamster on a running wheel near a bar and a bedpan—to suggest the frenzy of eclectic excess.

Rooms-in-a-box can be both movable and loaded with moving parts, as in TimeZone's Luggage House (page 95) and Allan Wexler's Parsons Kitchen (page 93). Here, architecture hovers between stasis and mobility, suggesting the impermanence of interior space.

Meanwhile, Wexler's Vinyl Milford House (page 93), a provocative inversion, functions simultaneously as a room in and *out of* a box. By stowing living components in extrusions outside the main volume, it ironically undoes its own efficiency, never actually reducing the total area needed for object storage plus occupants.

In this era of hybrid live-and-work arrangements, rooms-in-a-box resonate with the desire to compress life's forms and functions, while thinking, as they say, "out of the box." ■

Elisheva Levi is the editorial assistant at RECORD.

Mini-Kitchen
1964
Joe Colombo

This "microenvironment" on wheels, in a cube measuring just 2½ feet on each side, compresses the accoutrements of an entire kitchen: refrigerator, oven, stovetop, spit, and grill, with storage for six place settings, serving trays, pots, pans, cooking utensils, and recipe books.













Vinyl Milford House
1994
Katonah Museum of Art
Allan and Ellen Wexler

Wall cut-outs in this one-room shed precisely fit the forms of each piece of furniture. Thus, the interior space, or box, can become object free. When slid into the wall pockets, the furniture takes on a two-dimensional presence in silhouette.

Parsons Kitchen,
1994
Parsons School of Design
Allan Wexler

The kitchen serves as a bar for gallery openings at Parsons School of Design's Department of Architecture. Encased in a plywood box, it rolls out of an existing wall niche. Wine glasses, chip bags, and pans are meticulously arranged to create strong visual rhythms. Wexler also designed companion pieces as well, including the Kitchen Sink Crate, Self-serve Coffee Crate (with refrigerator) and Broom Closet Crate (with apron storage).

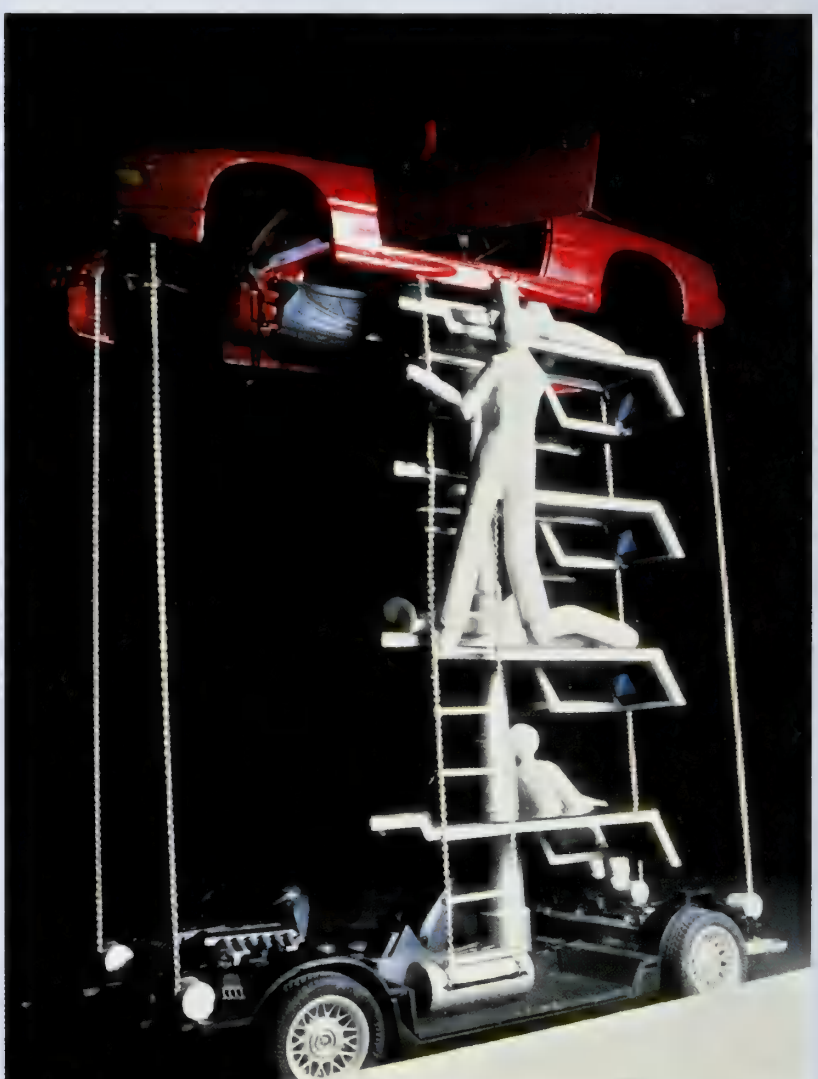


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Car Hotel
1995
Acconci Studio

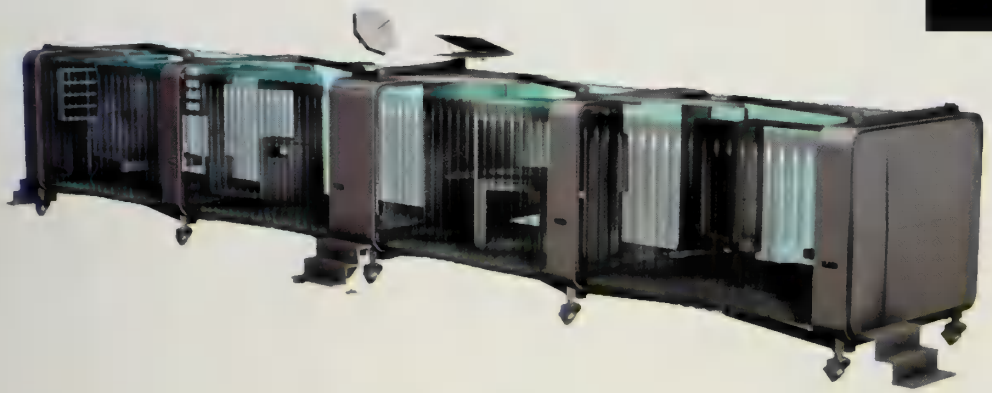
A joy-ride variation on the room-in-a-box, this mobile hotel—a world of rest and relaxation—springs up from an otherwise ordinary car.

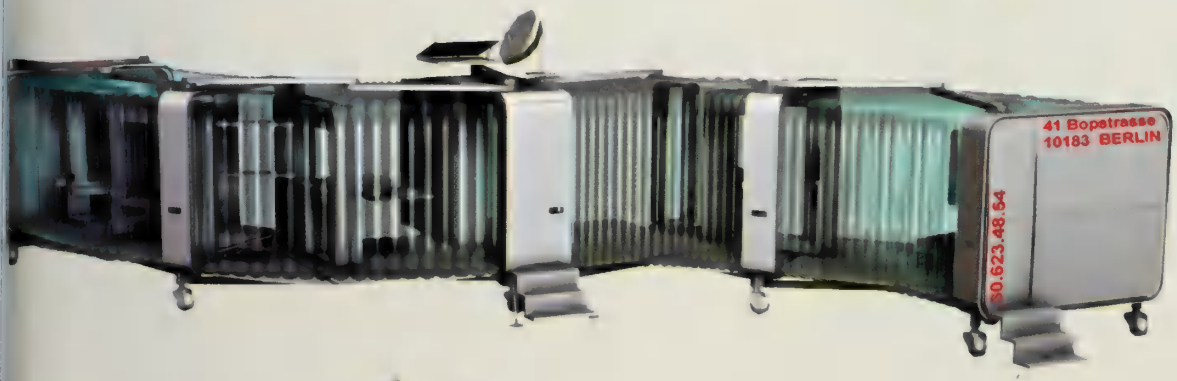


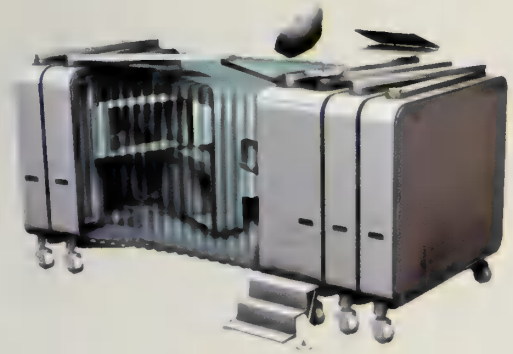
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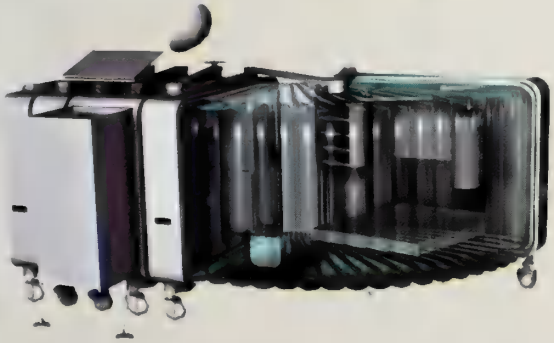














Luggage House
2000
TimeZone
(Claire Petetin and Philippe Gregoire)

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National Terrazzo & Mosaic Association 2000 Honor Award

Conseco Fieldhouse
Indianapolis, Indiana

Architect
Ellerbe Beckett
Kansas City, Missouri

The Architect's extensive experience in the design of modern Sports facilities was evident in the design and the selection of thinset epoxy terrazzo for the flooring in the Entry Lobbies, Stairs, and Common Public Areas of Conseco Fieldhouse. In keeping with the intended theme of an older era "Fieldhouse", terrazzo fit well in both esthetic appearance and the use of material of the era. The Owner required that the public area finishes withstand high traffic. The durability, permanence, and ease of maintenance made terrazzo the obvious choice. The designer's selection of the neutral terrazzo colors makes the statement of warm elegance. The terrazzo flooring used in the Entry Ramp, the Stair areas, and the Common Areas lends to the classic Fieldhouse design in both material selection and color selection. The traffic flows nicely down the poured in place Entry Ramp and Stairs both prior to and after the games. The use of brass medallions in combination with the zinc strips lends the look of the installation to the old and the new. The curved radius Entry Stairs is very appealing to the eye, yet very functional. Just as the Pacers are making a run at the Eastern Conference Championship, Conseco Fieldhouse, with the beautiful terrazzo finish, is leading the floor finish industry in scoring.

National Terrazzo & Mosaic Association 2000 Honor Award

Consolidated Rent-A-Car Facility at Dallas/Fort Worth International Airport — Dallas/Fort Worth, Texas

Architect
Corgan Associates Architects
Fort Worth, Texas

The consolidated rental car facility project combines all rental operations into a central building. The main commons building consists of 41,000 square feet of 3/8" epoxy terrazzo. The architect utilized five colors of terrazzo in large geometric shapes to create a unique pattern that is visible from the 2nd floor. Colors consisted of burgundy, peach, tan, black and gray. All colors were developed to use 5% mother-of-pearl to create a glimpse of sparkle. All colors were separated by a 16 gauge zinc divider strip. Once the commons building terrazzo installation was underway, the architect and designer made a decision to use terrazzo in all the rental car companies transaction areas. All eleven major car rental companies utilized terrazzo, ranging from 800 sq. ft. to 2,000 sq. ft. Each was designed with colors and designs to reflect on each company. The addition of some 20,000 sq. ft. of terrazzo not only allowed similar materials, but increased the ease of maintenance. Visitors that arrive at D/FW International Airport and rent cars must travel to this building and walk across this beautiful terrazzo floor!



National Terrazzo & Mosaic Association 2000 Honor Award

Cardinal Glennon Hospital Atrium St. Louis, Missouri



Architect
Archimages, St. Louis, Missouri

Designer/Artist
Directions in Design, Inc., St. Louis, Missouri

The Atrium area serves as the main entry for the entire hospital. Directions in Design's interiors design team was focused on creating a beautiful, as well as a functional space, which is interesting, colorful, whimsical as well as consistent with the hospital's new image. Terrazzo became the obvious flooring material. Combining blues and purples from the renowned Bob Costas Cancer Center interior with yellows, terra cotta and bronze tones from the exterior creates a vibrant color palette using both plastic and marble chips. The use of epoxy as the terrazzo matrix allowed matching of the various desired colors. Through the use of many different shapes such as diamonds, radius curves, trapezoids created by 1/8" zinc divider strips, interesting patterns flow together to lead the eye to the various areas accessed by the atrium space. The zinc strip was mitered to keep the lines clean and flowing. Additional light patterns, which are created by the overhead windows, are ever changing and add to the charm and comfortable feeling of the entry area. Particularly challenging to the terrazzo contractor was dealing with 7 different colors, in a small space, with so much strip in a detailed layout, and most importantly being only a 1/4" in depth.

National Terrazzo & Mosaic Association 2000 Honor Award

Disney California Adventure Anaheim, California

Architect
Walt Disney Imagineering
Glendale, California

For this main entrance to a theme park, cement terrazzo was the material of choice, since it could yield vibrant colors, with an intricate design, and still be economical. Note the use of 1/8", 1/4" and 1/2" wide brass with 1/4" and 1/2" wide zinc dividers. The brass and zinc circles for the mouse heads were shop fabricated, so there would be no visible joints or seams. The terrazzo was honed to an 80 grit non-slip finish. It was then sealed with an acrylic resin to enhance and saturate the 12 vibrant colors, which were all made from natural mineral pigments.



National Terrazzo & Mosaic Association 2000 Honor Award

JOB OF THE YEAR

Kentucky International Convention Center Louisville, Kentucky



PHOTO BY DAVID D. LAUDIDIO

Architect
Godsey Associates Architects
Louisville, Kentucky

Designer / Artist
Mags Harries and Lajos Héder
Cambridge, Massachusetts

The Kentucky International Convention Center (formerly the Commonwealth Convention Center) was enlarged and renovated to accommodate larger conventions in downtown Louisville, Kentucky. Portions of the existing concrete slab in the convention center were not scheduled for demolition so the new terrazzo flooring had to be thinset.

The owners wanted the floor to tell the story of Louisville and they wanted it to help orient conventioneers by giving them landmarks to help find their way around the convention center. The floor includes two city grids which highlight local landmarks such as Churchill Downs, the Louisville Slugger bat museum, the Louisville Science Center, the Center for the Arts, historic water tower, L & N train station and many others.

The backdrop for some of the floor is several colors of green and blue in a swirling pattern that fashions the waves of the Ohio River. The floor tells the history of Louisville as a river town beginning with the fossil beds at the Falls of the Ohio River. Mags Harries, an artist, fired several clay representations of the various fossils. These were laid in the terrazzo floor and ground in place with the rest of the floor. The terrazzo floor covers over 67,000 square feet of area. It has thirty different colors and chip combinations in the floor. It incorporates fired clay products, marbles, brass accents, glass and marble chips.

National Terrazzo & Mosaic Association 2000 Honor Award

The Entertainment & Sports Arena Raleigh, North Carolina



Architect
O'Dell & Associates
Charlotte, North Carolina

The Raleigh Entertainment and Sports Arena has been described as the "finest arena in the country." It is home not only to the National Hockey League's Carolina Hurricanes but also to an ACC basketball team. These goals had to be achieved: permanence, low maintenance, design flexibility, low-cost life cycle, and dynamic design. Only one product could meet such stringent criteria—epoxy terrazzo. The installation consists of 117,000 square feet of epoxy terrazzo in the concourse of this upscale facility.

"The pattern is part of an elaborate geometrical module. There are three-dimensional modular lines, which is both in plan and elevation. The curved ends have a singular radius point and all partitions, stairways, doorways, windows, precast panels and lighting fixtures are governed by these three-dimensional module lines. Given that it is a large building and used for entertainment functions, a high contrast was important so that the pattern would stand out when people were walking on it as well as looking down from balconies. The bold pattern was designed to fit the scale of the building."

Marley Carroll, FAIA, Architect/Designer

National Terrazzo & Mosaic Association 2000 Honor Award

L'Enfant Plaza Washington, D.C.

Architect
Fourth Street Design Studio, Inc.
Annapolis, Maryland

The existing monochromatic terrazzo flooring was demolished from the center mall court at L'Enfant Plaza, under the area where a new skylight was just installed. A new four-color sand cushion terrazzo floor system was designed to brighten the newly illuminated area. The intricate three dimensional terrazzo pattern system was the perfect compliment for the new skylights. The configuration of the divider strips is box shaped with three distinct colors used in each box to give the illusion of a three dimensional floor. The various subtle shades of the new terrazzo were carefully selected to help with the overall desired 3-D look. The terrazzo contractor was hand selected to perform this work by Fourth Street Design Studio. The three dimensional design required an extremely intricate layout of the divider strip design within a sand cushion system. Each strip was cut and meticulously set in the mortar bed. Due to the nature of the design, strips had to be aligned perfectly, as the straight alignment of strips can be seen both at a 45° angle and on a 90° angle.



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PHOTO © STEVE KEATING

PHOTO © STEVE KEATING

National Terrazzo & Mosaic Association 2000 Honor Award

Pehrson Residence
Seattle, Washington

Architect

Clint Pehrson Architects, Seattle, Washington

Designer/Artist

Jack Mackie, Seattle, Washington

The entry area floor design concept is found in the reflecting pools that are crossed just before arriving at the residence front door. After crossing the pools the front door opens onto a floor of large abstracted Japanese Maple leaves floating on a background water blue color. The leaf colors move around the room from the bright greens of spring to the dark greens of summer, to the yellows, rusts, and maroons of fall.

The kitchen floor design is a collage of images reflecting the couple who designed, built, and live in the house, their union and their home. The underlying grid structure of the house rises as a small floor grid that steps up onto the countertops. A red field, symbolizing the couple's strength, holds images of a sun in eclipse, this couple's unique moment in time; a quill representing the couple's professions of aeronautical engineer and architect; set along the quill a shell portraying home; Purple Martins, from the husbands childhood, rise from the point of the quill flying across to the entry door; and, the feathers of the quill spill out as swirls to a set of dance steps depicting a waltz, the shoe shapes taken from the shoes the couple wore for their wedding. These lines follow a bird through the room to the couple's crescent new moon.

National Terrazzo & Mosaic Association 2000 Honor Award

Pershing Point Plaza Atlanta, Georgia

Architect

N B & A Architects, Inc., Atlanta, Georgia

Designer/Artist

N B & A Architects, Inc., Atlanta, Georgia

Combining two forty year old buildings into one single building proved to be a huge renovation challenge for the design team. It was determined that the existing exterior courtyard space between the two buildings was to become the main entry focal point for the newly renovated building. A glass barrel vault skylight was used to allow direct daylight into this new space while connecting the buildings together. This atrium like space flows into the building's central corridor and the two separated elevator lobbies. The floor's design was critical to the overall concept and circulation flow for the project. Terrazzo was the natural selection to solve several of the projects design issues and actually complimented the final solution. There were no other materials that could fit the criteria, terrazzo was the only solution.

The involvement of US Mosaic in the job was an added benefit. It was very evident that they take great pride in their work; for their knowledge of the material and the craftsmanship of the installation was impressive. Their team effort not only provided the owner with a tremendous end product, but also added to our own knowledge of Terrazzo for future projects.



National Terrazzo & Mosaic Association 2000 Honor Award

PNC Bank Firstside Center Pittsburgh, Pennsylvania



Architect

L.D. Astorino & Associates, Ltd.
Pittsburgh, Pennsylvania

Rustic Terrazzo was chosen by PNC Bank for the sidewalks surrounding it's new operation center. The Architects followed the rustic Terrazzo specifications established by the city of Pittsburgh as their standard sidewalk finish. The 24,000 square foot installation is a two color pattern of 10′ wide alternating panels running from curb to building and wrapping around two sides of this two block building. The colors selected are a combination of granite and marble chips with gray cement matrix that complement the marble and granite facade of this building. The installation is 5″ thick, using 4000# concrete with a 3/4″ Terrazzo topping that was applied the same day to insure maximum adhesion. All the 1/4" joints were caulked using caulking colors that matched the two different colors. The surface was pressure washed and sealed. The highlight of this project is a 42′ diameter compass using 1-1/2″ x 1/8″ zinc divider strips to separate the six colors of the compass. Approximately 20 yards of concrete was poured and stripped in one operation to eliminate any cold joints in this slab. Rustic Terrazzo is used extensively on the City of Pittsburgh sidewalks as well as this project because of its durability, low maintenance costs, safe walking surface, and its ability to complement the exterior structure of the building with its beauty.

National Terrazzo & Mosaic Association 2000 Honor Award

Siena Campus of St. Rose Dominican Hospital Henderson, Nevada

Architect

HKS, Inc. of Nevada, Dallas, Texas

Designer/Artist

Thompson Design Associates, Reno, Nevada

The overall design of this project follows a California Mission Revival architectural style, which was popular in the early 20th century. Epoxy terrazzo was selected for this design to incorporate the Southwestern floor colors with the more subdued warm beige wall colors. A simple geometric herringbone design, based on the Native American tradition, is artfully woven throughout to liven the facility and lend a sense of timeless beauty. The terrazzo flooring in the entry rotunda incorporates the symbol of a rose within the geometric pattern, a design repeated throughout the project. The unusual color motif throughout incorporates all six colors of the rainbow, including red, green, yellow, purple and blue, which reflects the most recent research on healing environments. The project consists of 15,000 sq. ft. and 10 different colors. Brass and zinc divider strips 3/8″, 1/4″ and 1/8″ wide were used in the design areas. All designs were laid out and installed by hand.



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National Terrazzo & Mosaic Association 2000 Honor Award

Hotel Winneshiek Decorah, Iowa

Special Award



PHOTO © DOUG KNUTSON



PHOTO © DOUG KNUTSON

Architect

Renaissance Design Group, Des Moines, Iowa

The years had not been kind to the Hotel Winneshiek. Opened amid great fanfare on April 27, 1905, the once-luxurious Decorah hotel gradually fell into disrepair. However, thanks to an extensive, $7-million renovation of the hotel, financed and overseen by Helen (Hexom) Basler, this turn of the century hotel has been returned to its original beauty and the doors reopened in April 2000. The original plan for this Lobby floor had been to cover it with a custom carpet. However, as the floor was uncovered from layers of other finishes, dirt and grime, Mrs.Basler and the Renaissance Design Group (RDG) of Des Moines, Iowa determined to restore it.

The original Terrazzo floor consisted of two border blends, and one field blend of tinted cement and marble aggregate, of which several of the aggregates within the blends were extremely difficult to match with currently available aggregates. Luckily, however, (with the assistance of local Decorah artist/restoration expert, John Kjome), slab marble matching the aggregate needed, and removed from the hotel in the past was located in the crawl spaces beneath the hotel. This slab marble was crushed by hand and screened to provide matching aggregate to patch the over 100 silver dollar size holes, and myriad miscellaneous larger damaged areas. In the meantime, Mr. Kjome located matching marble mosaics and completed countless repairs to the existing mosaics. Following these repairs the floors were entirely reground, grouted, polished and sealed. The results were most dramatic, but difficult to capture photographically.



PHOTO © DOUG KNUTSON

BEFORE ⬇ AFTER ⬆





National Terrazzo & Mosaic Association
2000 Honor Award

Thomas F. Eagleton United States Courthouse
St. Louis, Missouri

Architect

Hellmuth, Obata & Kassabaum
St. Louis, Missouri

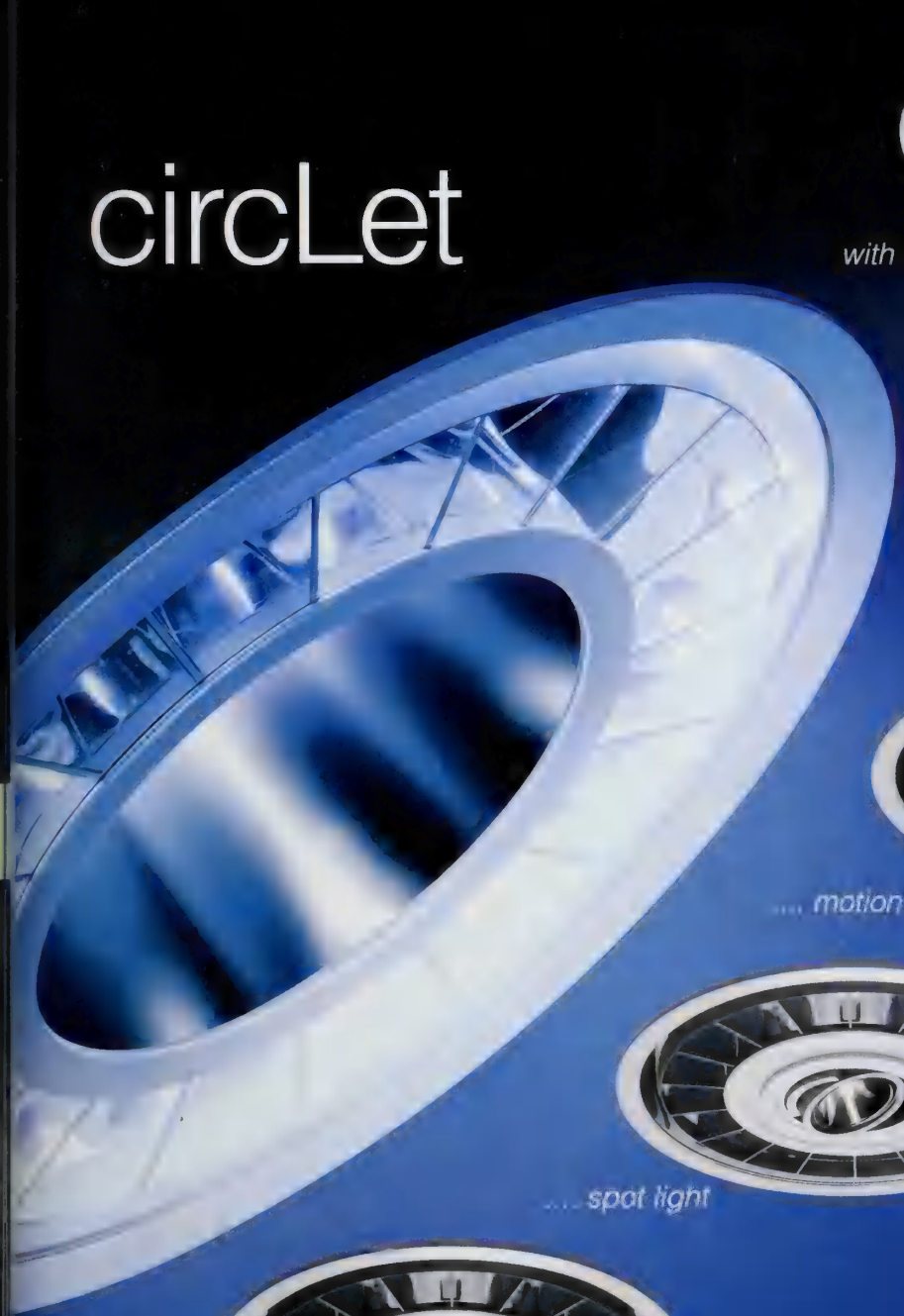
This project consisted of 50,241 square feet of sand cushion terrazzo constructed on 28 floors in all public entrances and the lobbies to all the courtrooms. The public elevators and the elevator lobby also have terrazzo. Chip colors that were used were Raven Black, Tennessee Dark Cedar, Cima Rosa, Dawn Beige and Persian Cream. The panels were divided using 16-gauge Brass strips with 1/4" heavy top Brass strips at all the terminus points.

This is the largest federal courthouse in the country. The east and west sides of the building are all elliptical. The east entrance is a 5 story high structure in an elliptical design. This area has 4,800 square feet of terrazzo with a Starburst design in the center of the floor. An elliptical lobby with a Starburst is also found on the 27th floor.

All of the terrazzo floor design was laid out to match the reveals on the walls and the ceiling. On the 3rd floor, there is an 8-ft. wide elliptical terrazzo walkway opening to the Starburst 2 floors below.

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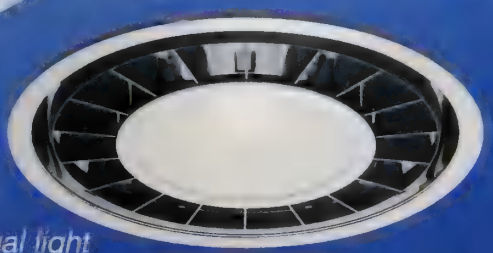


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2001 PROGRAM

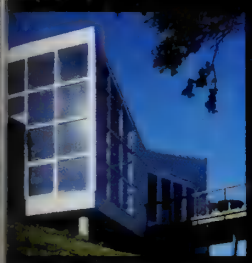
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Congratulations to the selected firms of The Wood Design Awards, 2001 Program offered by Wood Design & Building magazine, The Wood Products Council* and the Canadian Wood Council. Visit **www.WoodDesignAwards.com** for more information on the selected entries and to register for the 2002 Program. We thank our sponsors for making the Program possible, and our jurors: Jane Weinzapfel, FAIA, Robert Hull, FAIA, and Peter Busby, FRAIC, MAIBC.

HONOR *Award*



Conference Barn
Sant Architects, Inc., Davis, CA



Misha/Twaddell Residence
Burks Toma Architects, Berkeley, CA



Maple Valley Library
Johnston Architects, Seattle, WA, and James Cutler Architects, Bainbridge Is., WA

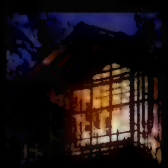


Muskoka Boathouse
Shim-Sutcliffe Architects, Inc., Toronto, ON



Wood Studio
Frank Harmon Architect, Raleigh, NC

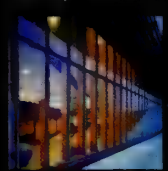
MERIT *Award*



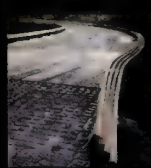
Pine Forest Cabin
James Cutler Architects, Bainbridge Is., WA



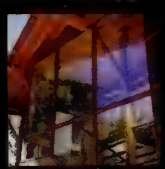
Pilchuck Glass School Studio Annex
Weinstein Copeland Architects, Seattle, WA



East Hampton Recreation Center
Davis Brody Bond LLP, New York, NY

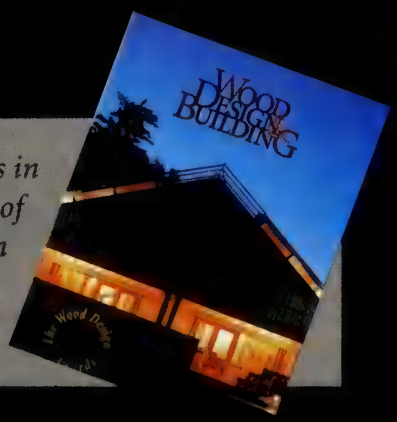


Vehicular Bridge
Gray Organschi Architecture, New Haven, CT

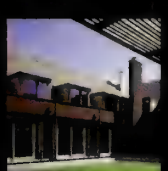


Caretaker's Complex
Gray Organschi Architecture, New Haven, CT

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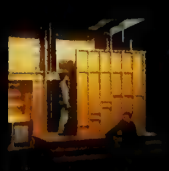
CITATION *Award*



Robertson House Crisis Center
Hariri Pontarini Architects, Toronto, ON



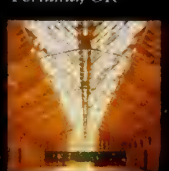
T.E.S.T. House
Brent Hinrichs Architect, Portland, OR



Le Petite Maison de Weekend
Patkau Architects Inc., Vancouver, BC



Storybook Farm
Shuford Evans Architects/ Interiors, Nashville, TN



Moorelands Camp Dining Hall
Shim-Sutcliffe Architects, Inc., Toronto, ON



Private Residence
Turnbull Griffin Haesloop, Berkeley, CA

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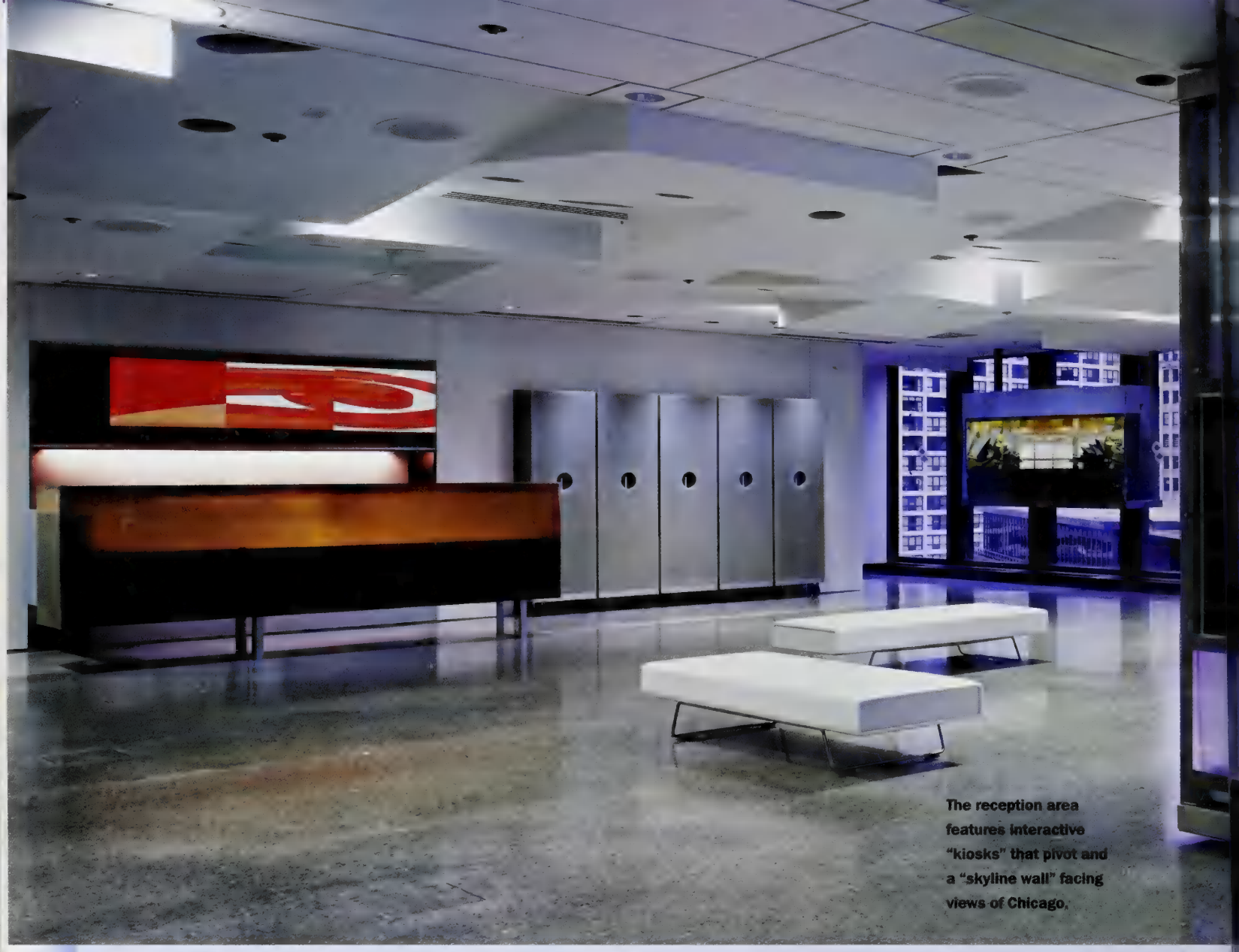
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CIRCLE 49 ON INQUIRY CARD

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The reception area features interactive "kiosks" that pivot and a "skyline wall" facing views of Chicago.

By Michael Speaks

Today architecture is undergoing a remarkable transformation that has little to do with new high-tech materials, computer softwares, or new shapes or forms. Rather, it is a transformation in the practice of architecture itself. This became clear to me recently when I visited George Yu and Jason King, principals of the firm Design Office (DO) [DECEMBER 2000, page 100], at their storefront location in Culver City, California.

I was struck by not only the range of their design work—which includes commissions for Max Studio clothing stores and offices for an independent record label in Vancouver—but by the facility and intensity with which they discussed the business activities of their clients. During our conversation about their collaborative design for the recently completed IBM e-Business briefing center in Chicago, Yu cited reports of quarterly earnings as frequently and with as much enthusiasm as he cited more recognizably architectural sources. Only near the end of my visit to the office did he or Young even mention that the briefing center was on the eighth floor of 1 IBM Plaza in Chicago, the last skyscraper completed by Ludwig Mies van der Rohe. Referring to a recent *Business Week* article, Yu noted that 40 percent of IBM's revenues and 48 percent of its profits are now generated by IBM Global Services, the consulting division that commissioned DO and Imaginary Forces (IF), a prestigious Hollywood-based film production studio, to become members of a collaborative team. This proved to be significant, because traditionally such commissions are overseen by IBM's Real Estate Services group, which would have handed the project to one of its strategic partners, such as SOM or

Michael Speaks is the director of the Post-Graduate Metropolitan Research and Design program at the Southern California Institute of Architecture in Los Angeles.



In a classic Mies office tower in Chicago, **Jason King** and **George Yu** of Design Office integrated digital technology and new ways of working into the architecture of IBM's Center for e-Business Innovation.

THE BIG BLUE YONDER





Made of nine glass doors, the 30-foot-long retractable "galley wall" displays rear-projected images.

HOK. If IBM had handled it the old way, the project-delivery process would have been relatively straightforward. The client would have offered the architect a problem and the architect in return would have offered a final design solution, having little control over the scope or program. But instead, DO and IF became de facto members of an innovative "thought-leader" team spearheaded by IBM e-Business Marketing and Strategy, and joined by HOK, which analyzed and questioned the parameters of the problem and offered an innovative environmental solution.

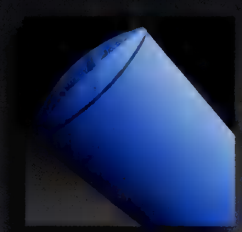
Leveraging a powerful brand

Setting its sights on becoming the most significant player in the high-stakes business-and-technology-consulting market, IBM has undertaken an aggressive marketing campaign that seeks to position Big Blue as a steadfast though innovative force. In the wake of the dot.com and high-tech slowdown, the company is targeting a middle ground between innovative (but less stable) firms like Razorfish, and stable (but less innovative) firms such as Accenture (formerly Anderson Consulting). Leveraging its immensely powerful brand—the third-most valuable in the world, according to a recent *Business Week* survey of the top global brands—IBM Global Services hopes to engage its consulting clientele in a collaborative process. Instead of selling the client a product, the company invites clients to become part of a collaborative team that includes IBM and its network of strategic partners. The idea is that working together will create end-to-end business solutions employing a variety of customizable services. The Centers for e-Business Innovation were created to give physical presence to this collaborative process. The first of the centers opened in Atlanta in 1996 and proved to be extremely successful. In 1999, IBM developed a more comprehensive strategy that included a series of regional centers, each of which was designed by a different regional team. The Chicago center, however, was meant to be a prototype that could be applied to all future locations: more than a design, it was to be the embodiment of a business philosophy.



CLASSICAL





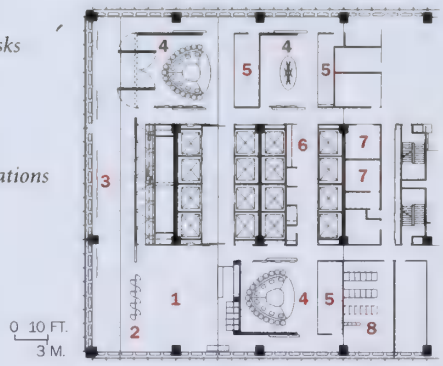
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CIRCLE 50 ON INQUIRY CARD



1. *Reception*
2. *Interactive kiosks*
3. *Lounge*
4. *Briefing*
5. *Audio-visual*
6. *Laptop workstations*
7. *Electrical*
8. *LAN*





Depending on the positions of the pivoting interactive kiosks and the sliding doors of the galley wall, the lounge can change in character from open to streamlined.

The design brief for Chicago called for a consulting facility aimed at senior-level corporate management that would reinforce the IBM brand while at the same time encourage collaboration and innovation. Since the actual product to be offered at these centers is consulting services, the challenge was to make these services palpable and memorable, without resorting to a hard sell. The project team—Yu and King from DO, Mikon van Gastel and Matt Chekowsky from IF, and Nancy Rowe from IBM—set out to create a nonhierarchical, interactive environment that would enhance group-based, creative activities without beating clients over the head with either technology or the IBM logo. This meant that neither brand nor environment could remain static. Using sophisticated motion graphics, IF animated the venerable IBM logo created by Paul Rand in the 1950s, so it can dance on the interactive digital screens and surfaces running through the center.

One of the most intense zones of new technology is the reception area, where a series of four interactive "kiosks" pivot so they can either open the space to an adjacent lounge or close it off. The kiosks are loaded with touch technology and even motion-activated audio, immediately engaging visitors in an information-rich environment. Along one perimeter of the reception space, a "skyline wall" blocks part of the view of the Chicago skyline and replaces it with simulated live feeds and images of cities from around the world. Superimposing global images onto local views sends a powerful message of the nature of IBM's business. Around the corner from the reception area, a 30-foot-long "galley wall" continues the display of high technology with images projected onto nine sliding glass doors.

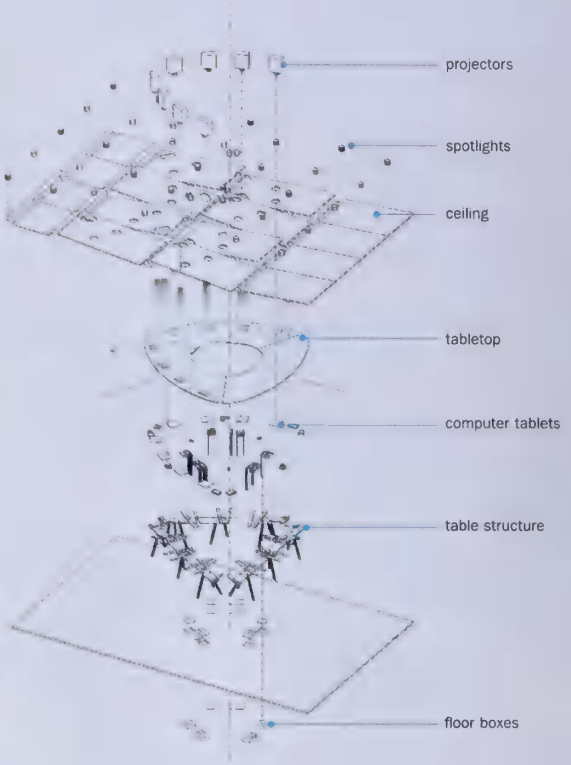
The use of new technology to encourage collaboration is perhaps most evident in the briefing rooms where a



CIRCLE 51 ON INQUIRY CARD







An interactive table in each briefing room allows all participants to see and manipulate images or information projected onto screens in front of each chair. The design encourages collaborative work.

custom-designed conference table shaped like a guitar pick serves as the electronic hub. Ceiling-mounted projectors beam images to monitors embedded in the tabletop, distributing visual information to each person sitting around the table. The shape of the table and the innovative way it functions as an information source make it a remarkable object of beauty and power. Such attributes also discourage standard business presentations delivered by a single authority from the head of the table.

New way of doing business

Forsaking the usual strategy of creating identity by embedding a brand in or on an object, the design team established an overall environment. By emphasizing the total experience rather than individual products, the IBM Center for e-Business Innovation pioneers a new way of doing business. In an industry where the product—information, knowledge, know-how—is intangible, establishing identity and solidifying relationships are keys to success. The strategy seems to be working. Since the Chicago site opened in January, 2001, IBM's "close rate" on deals for consulting services here is projected to be 40 percent, 12 percent higher than the average at other centers. The bottom line is that the company has signed more than $35 million in contracts at the new center.

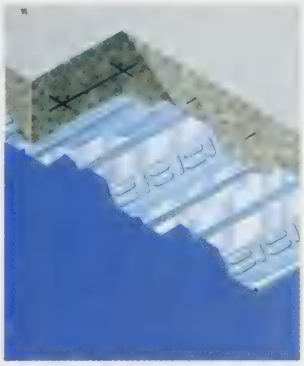
Much of the project's success stems from the collaborative nature of the design process, an essential factor considering that the e-Business center's goal is to encourage collaborative endeavors. Each member of the design team was challenged to work outside his or her professional field of expertise. Architects had to become brand strategists, motion-graphics experts had to think spatially, and marketing executives had to create a physical brand experience, not just a brand identity. The lesson for architects is that architecture can add value by expanding its purview. Good design alone is no longer enough. ■

WWW For more on this feature story, The Big Blue Yonder, go to www.architecturalrecord.com


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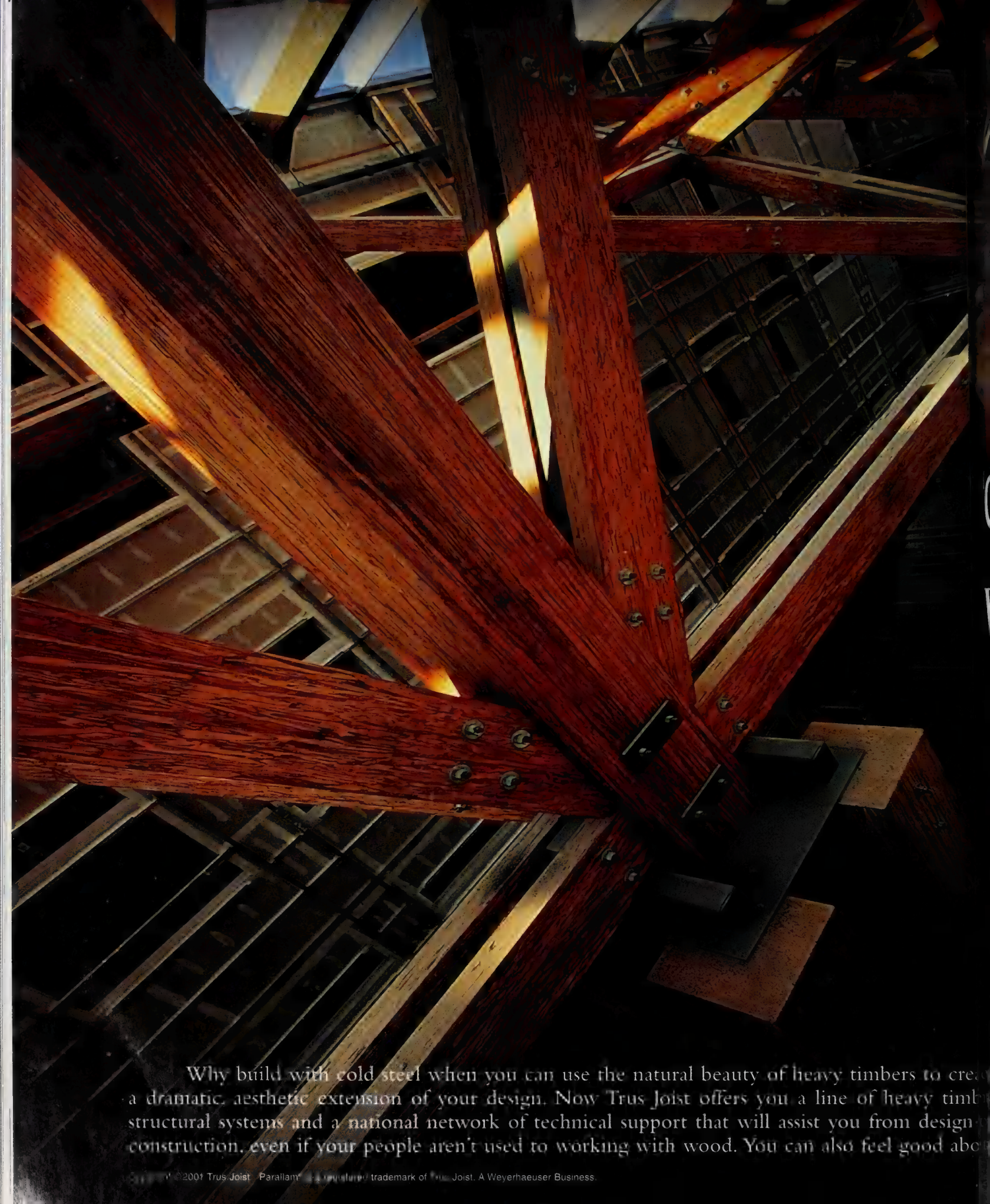
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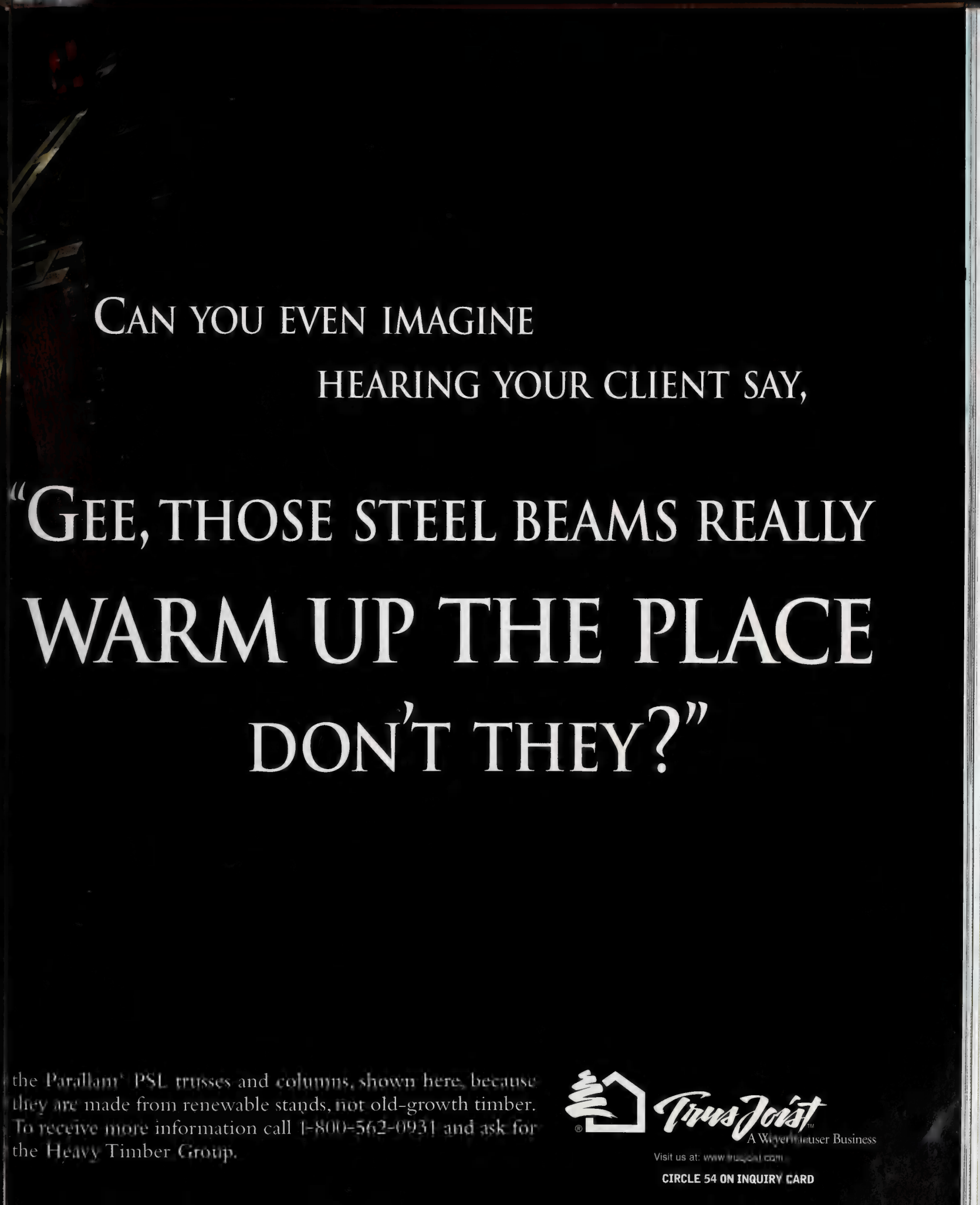
TRANSAMERICA SQUARE - DEVELOPER: The Harris Group - ARCHITECT: Gantt Huberman Architects - STRUCTURAL ENGINEER: Walter P. Moore & Associates GENERAL CONTRACTOR: Shelco Inc. - STEEL FABRICATOR: Steel Fab, Inc. - STEEL ERECTOR: L. R. Wilson

ODELL BUILDING - DEVELOPER: The Harris Group - ARCHITECT & STRUCTURAL ENGINEER: Odell Associates - GENERAL CONTRACTOR: Shelco Inc. STEEL FABRICATOR: Steel Fab, Inc. - STEEL ERECTOR: Williams Erectors



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CIRCLE 55 ON INQUIRY CARD

Record Interiors 2001

Confession: I am a voyeur of space. And if you're reading this magazine, you might well share that tendency. I'm not speaking of spying on people and their private acts—I just want to steal glimpses of places, of partially hidden interior realms.

The notion of a beckoning "view in"—the inward draw from the exterior—played a strong role in RECORD INTERIORS 2001. When soliciting entries for this issue, we rarely expect facades—after all, interiors with no visibility to the outside world can be successful. But this year brought a range of intriguing dialogues between inside and out.

At Electric Sun III tanning salon, for example, inspiration for a vivid, yet serene, interior came paradoxically from the chaotic L.A. strip-mall around it. Here, architects Escher and GuneWardena clad luminous tanning booths in huge-scale imagery to give an unassuming second-floor space a street presence amid a cacophony of billboards.

In a more private arena, the Bartlett Pennington House by Burley Katon Halliday shields its inner life from passersby. But just over the threshold, the introverted former workers' cottage gives way to an unexpected interior sequence, with glassy elevations opening onto an outdoor room or "secret" walled garden.

By contrast, Hanrahan Meyers' Schrom Studios, in Long Island City, NY, has no street interface, yet evokes metaphors of indoors and out. An interior within an interior, it features a freestanding glazed pavilion (a conference room) within a loft-like "streetscape." The inner sanctum invites coworkers and clients to peer through its transparent walls.

Transparent and translucent materials can also provide more deceptive lenses, as in ARO's Qiora day spa in NYC. Through a glass front, this interior appears lightly veiled in sheer fabric, as if coquettishly exposing all—while, in fact, the scrims simultaneously hide and reveal, softening and concealing the impermeable boundaries of private zones.

Like Qiora, Paris' Mandarina Duck boutique and New York's Glass bar and Bot and Pod restaurants all began with street-level storefronts. At NL's Mandarina Duck, the windows proffer glimpses of playfully inventive displays akin to installation art. With saturated colors and quirky forms, these partial views encourage a closer look.

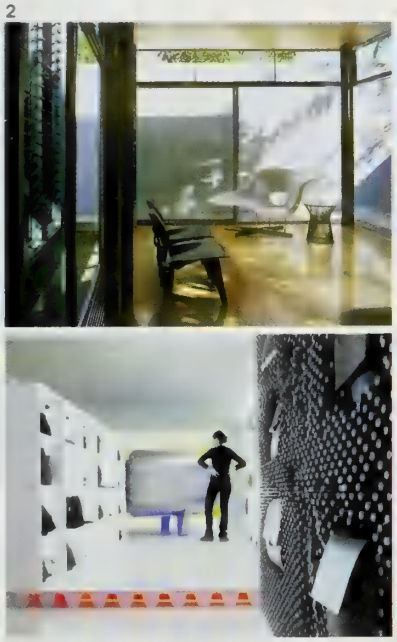
Leeser's Pod, Bot, and Glass take more liberties with the traditional plateglass window. Bot and Pod were both designed with glass facade panels that open, in effect pulling apart the front wall and blurring interior with exterior. When the panels are closed, imagery or abstract "pseudo ornament" on the glazing invites peek-a-boo views in.

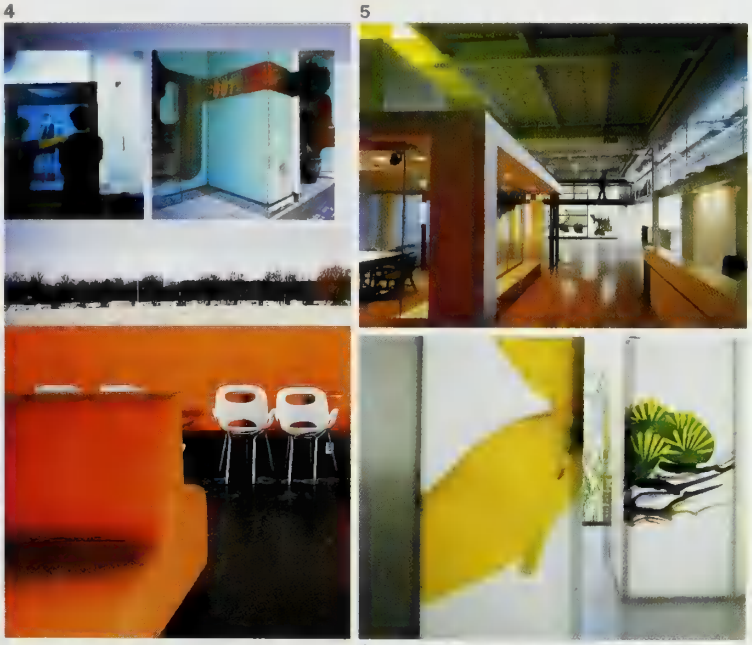
But Glass is the project that takes the naughtiest and most literally voyeuristic leap. Heightening the current trend toward sexually titillating restroom design (especially in nightspots), Leeser puts Glass's unisex washroom right against the front facade. By night, a mirror over the sink becomes a one-way window from the street, publicly displaying the private acts (washing up and primping) of unwitting clients.

We don't promise a risqué game with every project, but the views inward are all worthwhile. Please let your curiosity take the lead—through the windows and into the following projects. *Sarah Amelar*

1. ARO: Qiora
2. Burley Katon Halliday: Bartlett Pennington House
3. NL: Mandarina Duck
4. Leeser: Glass, Bot, Pod
5. Hanrahan Meyers: Schrom Studios
6. Escher GuneWardena: Electric Sun III


1

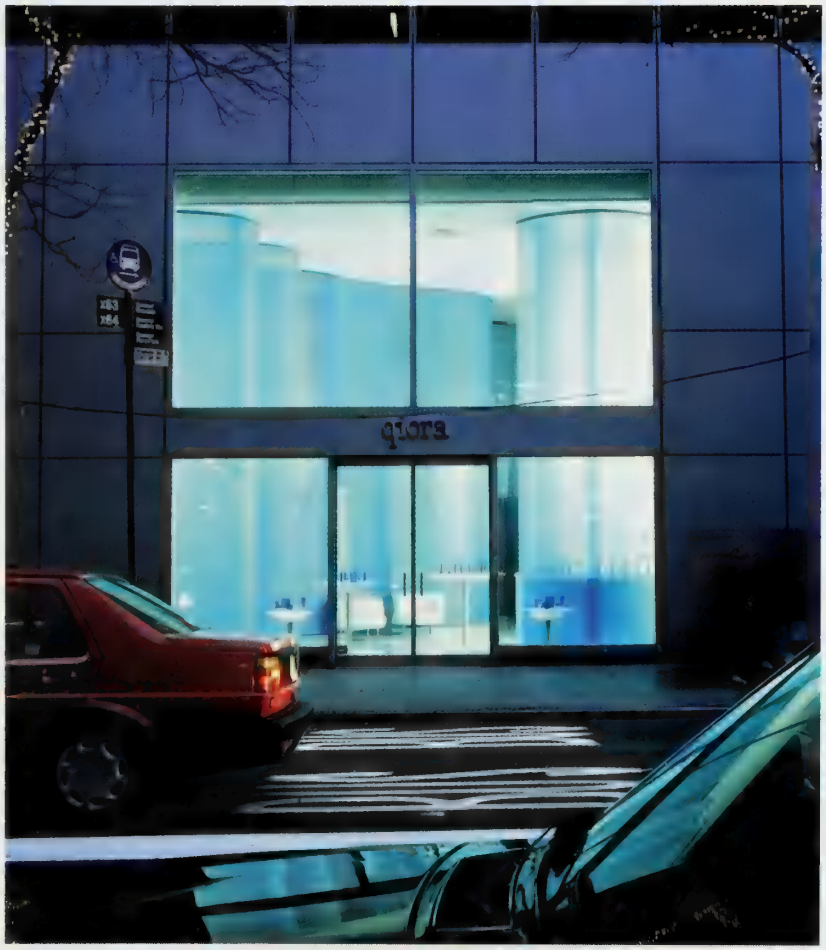

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At night, Qiora glows through a glazed facade (opposite). Even the solid walls of circular treatment cabins dematerialize visually amid layered veils (this page).

Finessing the soft sell, ARO wraps a luminous New York City spa and boutique in seductively gossamer veils at QIORA



By Sarah Amelar

The deeper you go in Qiora, the softer the focus gets—as if you were plunging under water or drifting through a cloud. From outside this day spa and store, the views through its plate-glass storefront seem remarkably clear, nearly revealing all. But the short, mood-altering journey inward—from a stylish stretch of New York City's bustling Madison Avenue, over Qiora's threshold, and into its more intimate spa zone—grows increasingly hazy.

Layers of veils, tinted in shades of aqua or milky white and suspended from the ceiling, become denser as you move toward the back of the 1,500-square-foot boutique. Gauzily wrapping the space's perimeter and enclosing circular treatment cabanas, the sheer fabric sensuously mutes all edges. But as you wander through this ethereal oblivion, you'll likely be unaware of the ways the design was consciously calibrated to make you, and the bottles of Qiora skincare products, look radiant. It all seems so natural and effortless, but this is, after all, Madison Avenue.

What's for sale here isn't just the packaged fluids: it's the ambiance, the aura and mindset that the products promise. The word "qiora" means "light from within," and Qiora proposes "to beautify the skin by relaxing the mind and body" through its products, along with "meditation-inspired deep breathing, healing touch, and closed-eye inner focusing." And this isn't just a casual feel-good connection between beauty and relaxation: As Qiora marketing literature solemnly purports, it's "the first skin care developed from research establishing a milestone in the holistic science of healing. The breakthrough proves that stress . . . harmfully affects your skin." (Not, some would argue, that we needed any "scientific proof" of that consequence.)

So, clearly when Qiora's parent company, Shiseido Cosmetics, set out to create this flagship store and spa, a manifestly spirit-and-skin-purifying atmosphere was essential. The effect had to be at once subtle and potent. And, of course, to showcase the new Qiora line, the setting and product packaging needed to embody the single "holistic" vision.

Thus, Shiseido sought out an architect to collaborate closely and poetically with its creative director, Aoshi Kudo. The company chose Architectural Research Office (ARO), a young New York firm whose projects had included a furniture showroom with a tensile fabric ceiling, as well as Times Square's Armed Forces Recruiting Station, a tiny, highly visible building draped in a great neon America flag. (ARO is currently working with Rem Koolhaas on the New York City Prada store.)

When ARO joined the project, Kudo had already designed the Qiora containers: mostly translucent, minimally labeled vessels in frosty whites and watery blues in shapes that depart slightly, but fluidly, from the conventional cylinder. When it came to spatial decisions, however, ARO partners Adam Yarinsky and Stephen Cassell were involved early on. In search of the good proportions and dramatic height that would give airy expansiveness even to a small interior, the architects helped select the Madison Avenue venue: a storefront with 20-foot-high ceilings and a Modernist glass facade at the base of a 37-story tower.

Project: *Qiora Store and Spa, NYC*
Architect: *Architectural Research Office—Stephen Cassell, Adam Yarinsky, partners in charge; Scott Abrams, project architect; Josh Pulver, Eunice Seng, Rosalyne Shieh, Kim Yao*
Design collaborator: *Shiseido Cosmetics—Aoshi Kudo, creative director; Rikya Uekusa, project designer*
Engineers *Selnick/Harwood (structural); Lilker Associates (mechanical)*
Lighting: *Johnson Schwinghammer*
Curtain consultant: *Mary Bright*
Audio-visual: *Shen, Milsom & Wilke*





1. *Retail*
2. *Consultation*
3. *Cashier/wrapping*
4. *Spa cabin*
5. *Men's/ADA bathroom*
6. *Lounge*
7. *Women's dressing area*
8. *Shower*
9. *Women's bathroom*



Outside veiled consultation stations near the front of the shop (above) are fiber-reinforced-plastic chairs (above and opposite) designed by Kudo, who also created Qiora's packaging. Display tables (opposite) have frosted acrylic tops with hollow steel pedestals, through which bundled fiber optics are threaded. Cleanly reflecting all is the glossy white, poured-epoxy floor.





Sheer white scrims over opaque white draping soften the spatial perimeters. Bottled skincare products, here creating striking patterns in shades of aquamarine, were integral to the entire interior design.



The interior, with its translucency, colors, and clean, supple lines, was consciously coordinated with Qiora's package design (left and opposite). The scrims were installed (below) with an elegantly simple, but practical, detail: They attach by Velcro to ceiling-mounted metal strips, allowing for easy maintenance.



"But the challenge in this limited space," says Yarinsky, "was like designing a submarine: There was a contradiction between the amount of program loaded in and the level of calm desired." The program included offices, which now occupy a 1,500-square-foot basement level, directly below the store, as well as retail, consultation, spa treatment, changing, and shower areas. For the architects, the combination of public and private, luxuriant and utilitarian functions raised questions: How could they, for example, attain the privacy necessary for massages without compromising overall lightness and visual continuity? They solved this dilemma with three circular treatment cabins that don't meet the ceiling, thus appearing to float in space. The circular forms, eliminating corners and barrierlike flat surfaces, allow for visual flow. But the solution went further.

Yarinsky and Cassell quickly realized that sheer fabric could perceptually dematerialize such hard, solid vertical surfaces as the cabin enclosures. Generating an aura around products and clients, the ephemeral textile could screen out nuts and bolts, access panels, sound systems, and other esthetic distractions. And scrims varying in opacity and overlap could enhance the sense of spatial complexity and depth. "We saw the possibilities," says Yarinsky, "of blending the perimeter into the forms, of blurring the distinction between edge and object." Originally, the architects envisioned all white fabric, but Kudo persuaded them to use a range of blues that would highlight his packaging. Then, to install the custom-dyed cloth, ARO devised an elegantly simple, but practical, detail: vertical strips of organza attached by Velcro to ceiling-mounted metal strips, allowing easy removal for cleaning or repair.

Lighting, as much as suspended veils, was key to the design's experiential qualities. Reacting against the sameness of standard retail track and can lighting, ARO embraced the Qiora metaphor of "light from within" by eliminating visible light fixtures, in favor of more mystical illumination. On the perimeter walls, the architects mounted fluorescent fixtures—warm and cool—vertically in staggered formation behind layers of white flame-retardant-treated fabric. A computerized dimmer almost imperceptibly switches between warmer and cooler light. "The coolness," says Yarinsky, "has the natural feel of a cloud passing briefly across the sun on a bright day." The light also invites views deep into the space at night.

Within the boutique, an even, diffuse glow creates a luster on the skin with few shadows—making clients feel naturally beautiful, while tacitly endorsing the product and treatment benefits. Meanwhile, in the front retail area, fiber optics shine up through the frosted acrylic tops of ARO-designed display tables, glimmering through liquids in translucent jars.

Qiora's realm of the senses relies not only on lighting and the tactile qualities of veils, but also on a sound system that can play lapping or purling water from within the cabins' padded, white Ultrasuede-lined walls.

Throughout Qiora, ARO successfully coaxed the complicated into seeming clean, pure, and silky, while achieving a remarkable mix of privacy and apparent openness. This delicate and supple dreamscape is capable of an all-enveloping, almost hypnotic, effect—perhaps inducing mellowed clients to buy into the Qiora way of life. ■

Sources

Lighting: *A+L Lighting (fluorescent); Lutron (dimmers); Opra S.G.F. (DMX motor-controlled fiber optics)*

For more information on the people and products involved in this project, go to Projects at **www.architecturalrecord.com**

Burley Katon Halliday creates an unexpected interior sequence at the BARTLETT PENNINGTON house in Sydney, Australia

By David Clark



Behind the black door of this sandstone 19th-century workers' cottage lies an unexpectedly modern interior. Open the door and, like a surreal carpet runner, a straight path of glass (dramatically underlit at night) beckons you into a rigorously composed and detailed sequence of interior and exterior spaces.

The project, a renovation and addition to a small house in Sydney, was designed by Iain Halliday of Burley Katon Halliday, an Australian firm known for its contemporary, Minimalist interiors, and recently, such large-scale projects as entire apartment developments.

The house sits just two steps off a quiet lane of a well-to-do suburb a few miles from the center of Sydney. Its site—a small parcel of land measuring 30-by-55 feet—is of a scale more expected in Tokyo. The owners, a developer and a banker with a passion for architecture and design, bought it with the intention of making something for themselves with architectural impact. "Difficult to do with a project so small," concedes Halliday, but nevertheless he has produced a remarkably simple and sophisticated piece of work.

Typical of Georgian cottages, the original two front rooms were well-proportioned, formally composed, and nearly symmetrical, while the rear service areas comprised a more *ad hoc* accretion of spaces, built as needs arose. Halliday's first step, as he recalls, was to "release the strength of the two front rooms" by demolishing the back quarters, leaving a simple thick-walled sandstone structure.

Continuing the axis of the existing central corridor, the glass path runs straight through a sequence of interior and quasi-exterior spaces, from the sandstone cottage through two boxlike additions, ultimately reaching a walled courtyard. The middle building, a stainless steel-clad service zone (which can be glimpsed from the street over the roofline of the original building), contains a kitchen, bathroom, and laundry, while the rear building, a glass "living box," opens onto a sunny, high-walled courtyard facing northeast. (Down Under, of course, the north is the sunniest exposure.)

David Clark is a Sydney-based journalist who frequently covers architecture and design. He is a former editor of Belle *magazine.*

The three pavilions are joined by enclosed glass bridges that skip across a shallow moat of water around the central service core. This device grew from the need to maintain the ratio of outdoor space required by council regulations, and a desire to keep the new work detached from the old. The separation ends up adding poetic qualities. A delightful indoor/outdoor experience comes from passage through a sequence of interior spaces punctuated by discrete outdoor "events."

With deep stone walls and small apertures, the original pavilion had a sense of enclosure that made it the logical place for private quarters. Here, a bedroom and a study flank the central corridor. Sliding doors, operating like shoji screens, can divide or unify this first structure's three zones. Its interior is fully lined in silver ash veneer, chosen for the relation of its tonal quality to the exterior's honey-colored sandstone. This wood-lined interior is detailed like a fine piece of cabinetry, with sleek panels sliding from wall pockets to completely cover the window openings.

Opposite the existing front windows, Halliday added two new openings through which glass doors pivot open over the water, nearly touching the stainless-steel wall an arm's length away. With the panels closed, this interior can feel like a hermetically sealed jewelry box, but

Project: *Bartlett Pennington House, Sydney, Australia*
Architect: *Burley Katon Halliday—Iain Halliday, David Katon, David Selden, Tim Alison, design team*
Engineers: *Taylor Thompson Whitting; Vos Partnership (mechanical)*



The path through a 19th-century stone cottage (opposite) now culminates in a crisply Modernist glass-box addition (this page).

A straight path of glass, dramatically underlit at night, leads from the original stone cottage, now lined in silver ash veneer (above) through two additions: the stainless steel-clad service building (opposite right) with a glass louvered elevation (above right and opposite left) and the transparent living/dining pavilion (right, and above right).



1. *Corridor*
2. *Study*
3. *Bedroom*
4. *Bathroom*
5. *Tub*
6. *Kitchen*
7. *Stepping stone*
8. *Dining*
9. *Living*
10. *Garden*
11. *Moat*



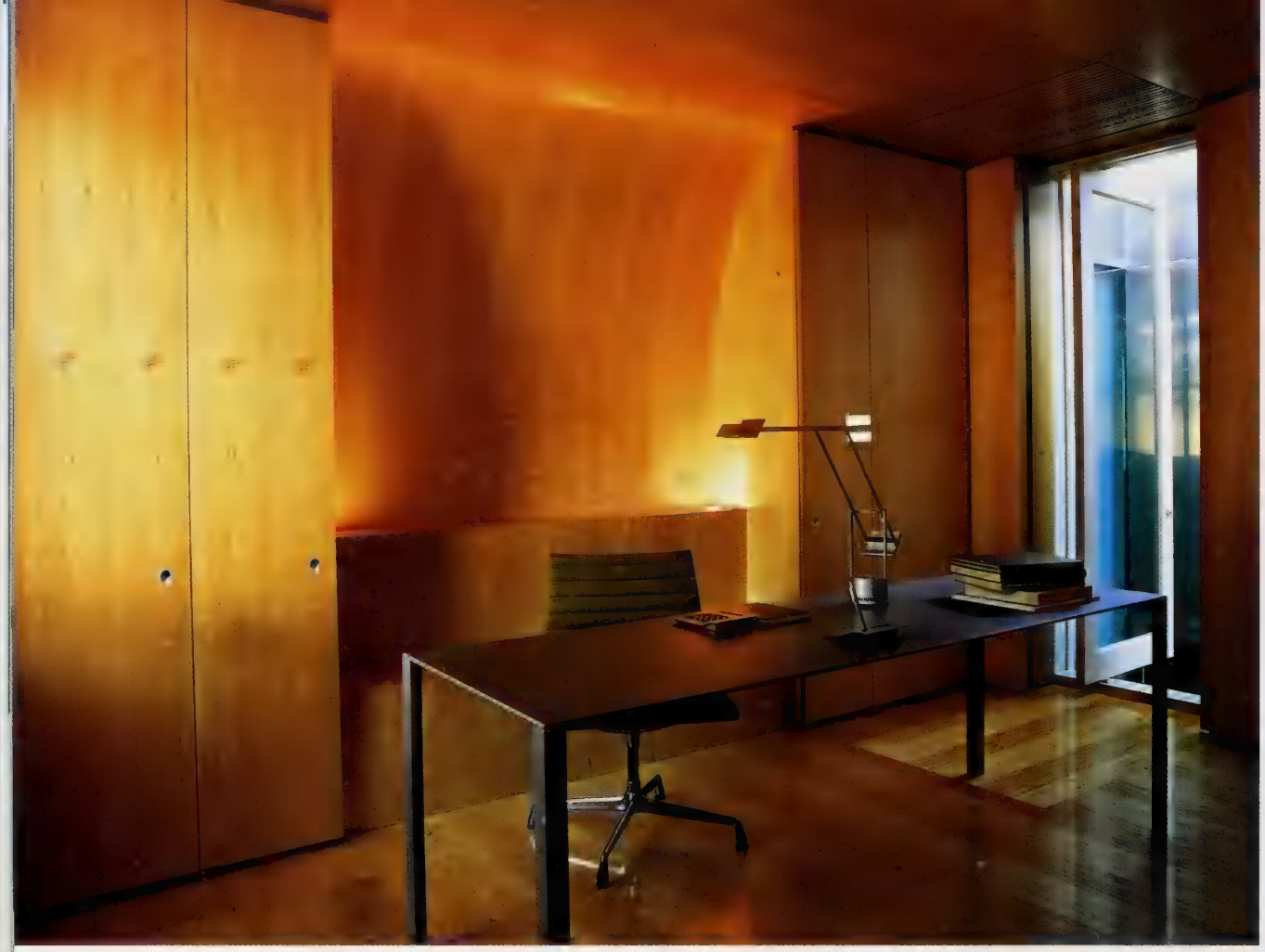


SECTION A-A



The living pavilion (opposite) and connecting corridor, enclosed in glass, allow for glimpses and communication across a narrow moat and through glass louvers in the kitchen (this page). Though small in scale, the house offers a visually rich journey with changing exterior/interior views.





In the original stone cottage, silver ash veneer now lines the study (left), bedroom (below), and sliding panels, which function like shoji screens, separating the rooms from the central corridor.

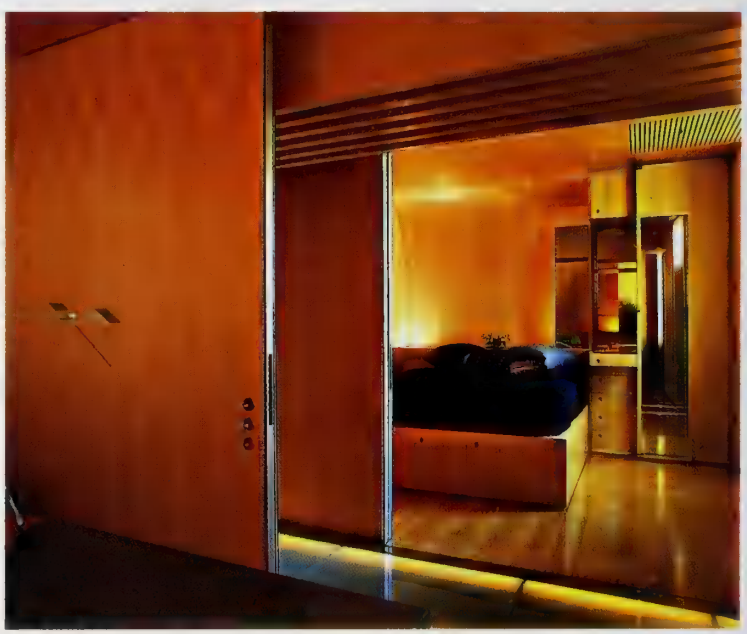
when opened to the light, breezes, and water, this space is transformed.

The second box is a narrow volume rising up almost 16 feet with a glass louvered wall to the north. Opening toward a glazed pavilion across the narrow moat, the louvers allow for layered views and communication, especially between the kitchen and living areas. This wall also projects above the next pavilion's roofline to capture northern light.

After the spatial compression of the entry corridor with the bedroom and study sliding doors closed and the visual weight of overhead timber blades above, this glazed zone offers a sense of release as in Classical architecture, achieved here at a remarkably small scale. The bathroom, all the way to the west, nestles against a party wall adjoining a neighboring property. With a deep-set bathtub, tucked into the moat, it's possible to bathe while looking out onto water.

The third pavilion approximates the interior proportions of the front rooms and is similarly lined with wood veneer. With obvious allusions to Mies van der Rohe and Philip Johnson, this structure has sliding glass walls on three sides, which literally open the interior. In warm weather, perpendicular panels can be pulled apart, dissolving a corner into the outdoor room of the courtyard. With an enclosing garden wall, and the exterior ground level matching that of the interior, the indoor and outdoor zones meld together.

Given the scale and compression of the site, it is almost impossible to stand back and grasp the building's whole exterior. And so, the experience becomes emphatically one of interiors and quasi-interiors—with spaces both covered and open to the sky. The design influences are varied and clearly legible: Classical axiality, Miesian modernity, and Japanese simplicity. It's a lot for a small space. Nonetheless, Halliday has fused them together with a logic that creates a calm, but richly varied, place. ■



Sources

Glazing: *Pilkington*
Lighting: *Erco, Kreon*
Paints and stains: *Cabuts*
Faucets: *Vola*
Hinges: *Dorma*
Locksets: *Abloy*
Kitchen appliances: *Fisher & Paykel (refrigerator); Miele (dishwasher); Smeg (oven and stove)*

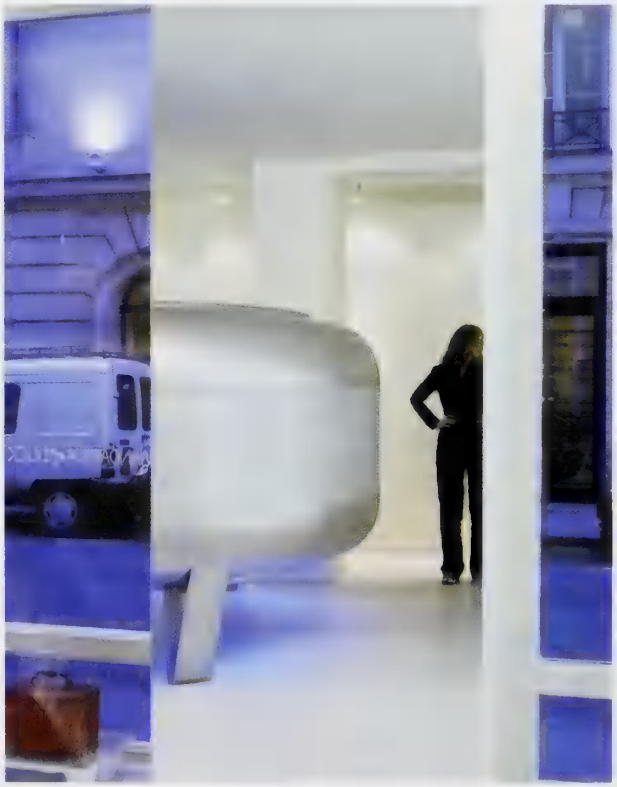
WWW For more information on the people and products involved in this project, go to Projects at **www.architecturalrecord.com**



The threshold between the original thick walled cottage and the additions ushers in abundant daylight.

NL Architects with DROOG Design creates the MANDARINA DUCK store in Paris, sparked with inventive and whimsical displays





By Claire Downey

Mandarina Duck is not a Chinese restaurant, but an Italian company known for innovative luggage and design-conscious handbags. When it recently launched sportswear lines for men and women, its retail outlets needed rethinking. On top of creating a strong brand image with displays of accessories and clothing, Mandarina envisioned its new spaces as incubators for ideas.

For its flagship boutique, which opened in Paris last October, the playfully named company called on Amsterdam-based Droog Design (which literally, though perhaps tongue-in-cheek, translates as "Dry Design"). While not architects or furniture/industrial designers themselves, Droog founders Renny Ramakers and Gijs Bakker regularly collaborate with designers and architects who share their irreverent, but always intelligent, design view. Ramakers and Bakker function much like art directors, alternately acting as talent scouts, curators, and visionaries. For the Paris store, Droog turned to another Dutch group, NL Architects.

The four NL partners—Pieter Bannenberg, Walter van Dijk, Kamiel Klaasse, and Mark Linnemann—had begun working together in the early 1990s while commuting between their homes in Amsterdam and architecture school at Delft University. They officially set up an office in 1997. Through much productive back-and-forth, Droog engaged NL in an intense exchange of ideas, choosing some and discarding others.

Since NL conceived the Paris store as a prototype, the furniture and display elements are mostly freestanding objects, adaptable to nearly any space. The architects call the displays "cocoons," each capable of housing its own shelving or hanger system. These objects are varied, ranging from a tunnel of industrial pallets cast in translucent plastic to "the vacuum wall" that seemingly suspends merchandise in midair. Instead of crowding the store, this eclectic collection gives an overall effect of spaciousness against a neutral backdrop of white walls and floors.

Reminiscent of installation art, these pieces include the freestanding "pin wall," an aluminum panel studded with 20-inch-long metal rods that can slide forward or back to create bulges on one side of the wall and the inverse, "impressions," on the other. It's an optical play, as well as an open system, adjustable to accommodate, say, a suitcase or handbag.

Claire Downey is Architectural Record*'s Paris-based contributing editor.*

Project: *Mandarina Duck, Paris*
Architects: *NL Architects—Pieter Bannenberg, Walter van Dijk, Kamiel Klaasse, Mark Linnemann, principals*
Associate architect: *Antonio Virga*
Curator/client: *Droog Design*

Mandarina Duck's inventive product displays include the "Inverse Clothes Rack" (this page and opposite), a steel-clad spaceshiplike booth that beckons shoppers inside it, and the "Pallet Tunnel" (this page and opposite top), a luminous shelving element made from industrial pallets cast in translucent plastic.



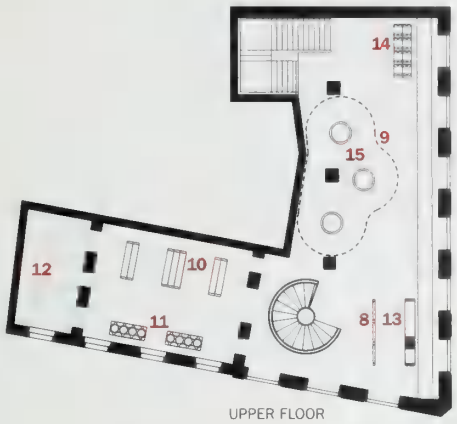




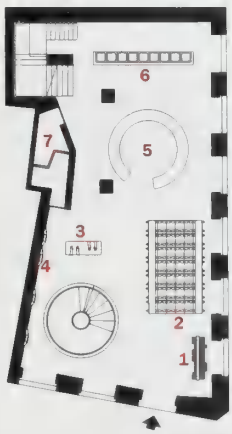
The freestanding "Pin Wall" (opposite) features aluminum paneling studded with close-set metal rods that can slide forward or back to display bags of different shapes and sizes. The "Rubber Wall" (this page) is striped with thick, colorful elastic bands that can easily and playfully hold merchandise in a variety of positions.

Near the "Rubber Wall," a "Mandarina Duck yellow" stair rises to the upper floor. Though this spiral may be conventional, the designers proposed a stair that would rotate like a vertical rotisserie (as yet, unrealized). The "Pallet Tunnel" is vividly lit from below (opposite bottom). "Grassland" (opposite top) offers fitting rooms amid fiberglass "stalks."





UPPER FLOOR



ENTRY FLOOR

0 3 FT.
1 M.

Pin Wall
Pallet Tunnel
Incubator
Rubber Wall
Inverse Clothes Rack
Counter
Fitting rooms
Vacuum Wall
Curtain Room (enclosed in strands of steel beads)

10. *Fluo-cupboards (with fluorescent-light shelves)*
11. *Mirrorboxes*
12. *Grassland fitting rooms*
13. *Epoxy-cupboards*
14. *Socle (mini-Pallet Tunnel)*
15. *Stackable round tables*





Another wall is striped with colorful thick elastic bands that can hold merchandise in a great variety of positions. Just as playful, the dressing rooms were inspired by gently swaying cornfields. Each room is actually a clearing amid hundreds of fiberglass "stalks," or rods, (comprising more than 98,000 linear feet) anchored to a flat metal base and free to bend at the slightest touch. The dense arrangement provides total (curtainless) privacy, while evoking a strange, rustic hut *à la* Mad Max.

Mandarina Duck spans two floors, totaling 3,230 square feet. To beckon customers up to the larger, second floor, the architects designed a wide spiral stair that would gradually rotate like a vertical rotisserie, constantly shifting the arrival point. Unfortunately, this element was not built as planned and the current spiral stair is literally at a standstill. But the store remains a work in progress, and NL's surplus ideas—which include a conveyor belt through the store—may one day be realized.

NL consciously created designs that could be repeated and further developed at Mandarina Duck locations throughout France, though no second project has yet been announced. For flagships in London and Milan, the company is consulting different architects (rumored to include Zaha Hadid) to generate a unique prototype for each international market. The designs will likely serve up more ideas than Mandarina can use. "But in a world where you traditionally work with permanence," says Klaasse, "it's a relief to be able to try things out." ■

Sources
Pallet Tunnel: *Lexan Exell, MDF*
Pin Wall: *Aluminum, id-polyethylene*
Rubber Wall: *Rhodorsil Melange Maitre*

WWW For more information on the people and products involved in this project, go to Projects at **www.architecturalrecord.com**

Leeser Architecture explores notions of the everyday in three different New York City venues: **GLASS** bar, as well as **BOT** and **POD** restaurants

By Cynthia Davidson

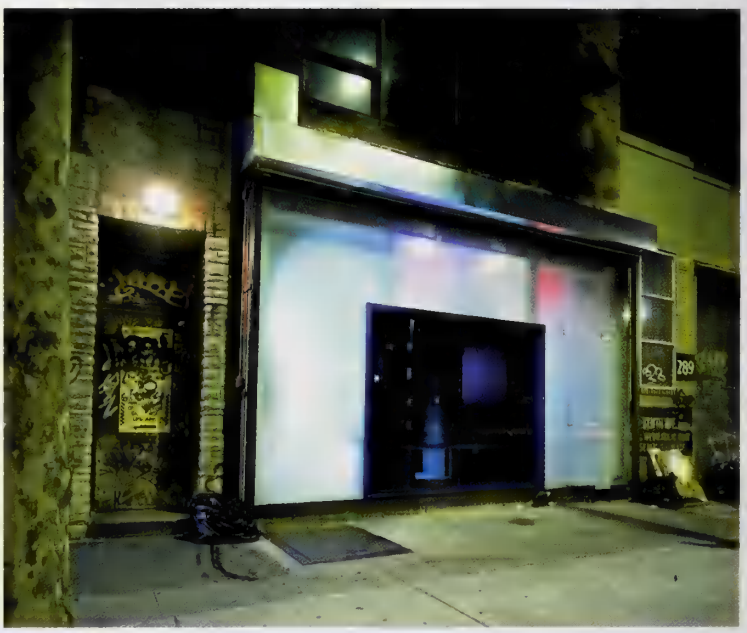
Has the increasingly architectural presentation of everything from lamb chops to ice cream taken over the role of design? Is a "designed" restaurant often covering up for mediocre food? Is restaurant design ever independent of the menu?

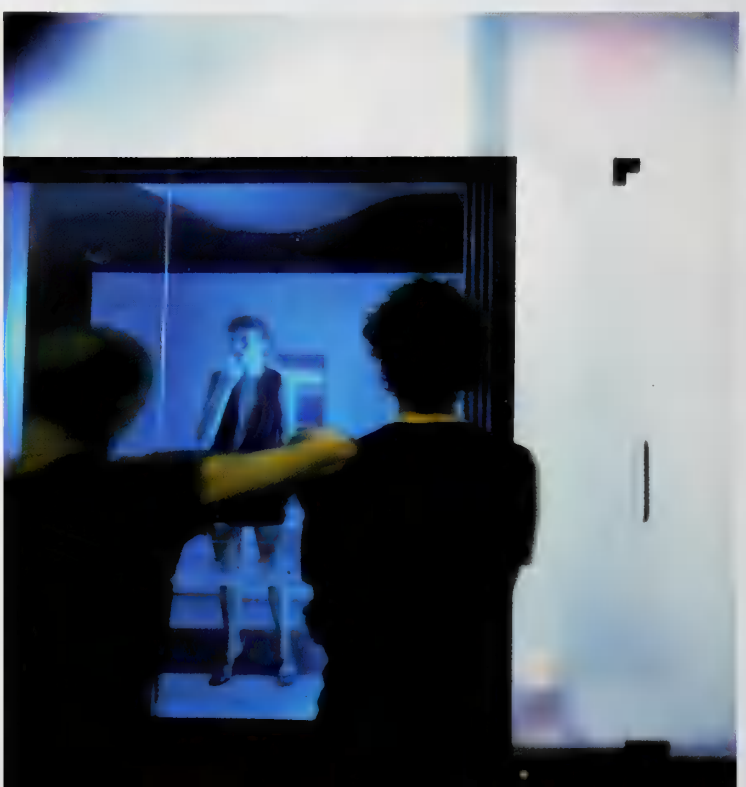
Thomas Leeser, AIA, believes that restaurant design is mired in nostalgia, and wants to move it into the future, but I see his three recent New York City commissions—Bot, Pod, and Glass—as attempts to wrestle with the everyday: the ordinary acts of eating, eating without seeing, seeing without thinking. "The everyday is the most resistant to change," he says. "How do you theorize it? How do you critique it?"

Leeser takes on the everyday in shades of black, white, and gray at Glass, in the trendy neighborhood of Chelsea, where this restrained palette puts emphasis on his façade: a large square of deep blue glass framed by frosted white panes. By day, the unmarked elevation is mysteriously opaque, its blue panes mirroring the sidewalk activity. By night, when lit from within, the blue glass reverses this quality, becoming a transparent window that reveals activity at the restrooms' trough sink. Suddenly the everyday act of washing up and primping in front of the now-interior mirror is on public display.

The decision to put the restrooms along the front façade stems, Leeser says, from his 1980s bar days, when "everything happened in the bathroom—sex, drugs, etcetera." But today, it also seems to play off recent moves to make public performance of private acts, as in Diller + Scofidio's Brasserie restaurant, where a trough sink penetrates the wall separating the men's and women's rooms. Leeser goes two steps further: At Glass, the toilet rooms are coed—men and women share one long sink—and so, both sexes are on view to the street.

The live, after-dark spectacle of the front window is a tough act to follow in the bar itself. Beginning with a basic 3,000-square-foot store-





Cynthia Davidson is the former editor of Any *magazine and* Any *books. She currently edits the* Writing Architecture *series published with MIT Press.*

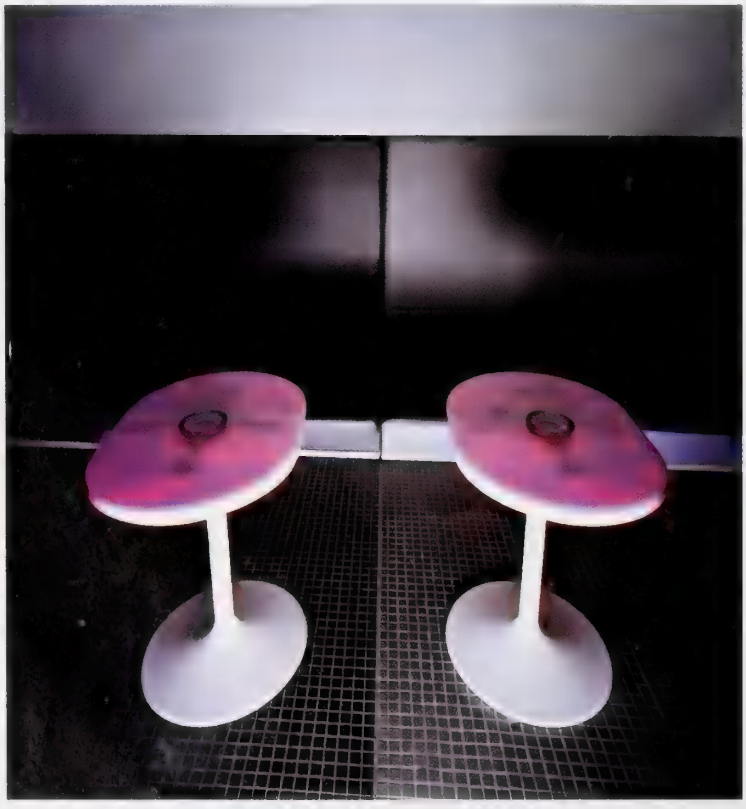
Project: *Glass, NYC; Bot, NYC; Pod, Brooklyn, NY*
Architect: *Leeser Architecture—Thomas Leeser, AIA, principal; Caroline Vanbiervliet, project architect (Glass); Marco Bevilacqua, designer (Glass and Bot); Max Zinnecker, project architect (Bot); Andy Saunders, Max Zinnecker, Raymond Kwok, design team (Pod)*
Associate architect: *David Riebe (Pod)*



By night, Glass' facade (opposite) offers a window onto the coed bathroom sink, where unwitting clients primp before a one-way mirror. The far end of the space opens onto a garden.



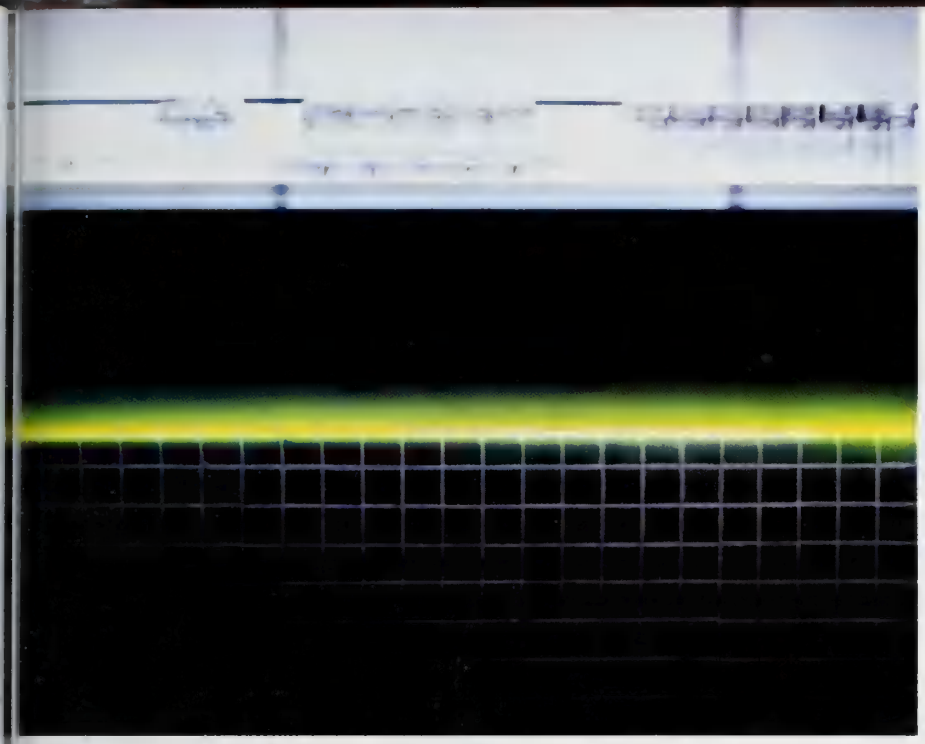




front shell that required no real plan, Leeser inserted into the rectangular void a kind of undulating fuselage of drywall. The curves are deceptively simple, inspired by automobile and airplane design. A bench along the one long wall narrows toward the back of the room, where a transparent glass wall opens onto a garden. Without a bar crowd filling the space, it seems disconcertingly banal. Where is the dance floor? The mirror ball? The nightclub atmosphere? The place is so "cool" that it's almost Minimalist, with square ceramic tiles laid in subtly curving patterns and large capsule-shaped insets of rubber set strategically into the floor. The materials are commonplace industrial, but their appearance in a "scene" bar is unexpected. Does the bar crowd notice?

Meanwhile, a mile or so downtown, Leeser has played out the everyday game entirely differently at Bot, a neighborhood trattoria. Sitting in the garden at Bot, with laundry hanging overhead and the hum of air conditioners all around, is an otherworldly experience. Otherworldly because it is New York but could be Barcelona—and because the plexiglass tables are aglow with fluorescent color and the "room" itself seems to be coming apart at the seams.

Located on Mott Street just north of Little Italy, where until recently "colorful" tended to describe the neighborhood's residents more than its restaurants, Bot is a jolt of style from front to back. Like a horizontal shaft of light, the room bores through the ground floor of a brick tenement building, connecting the street to a back garden. This act of "blowing out the space," as Leeser calls it, transforms the base of the building. It also more than tripled Bot's warm-weather seating area to 2,500



The interior's fuselage form creates undulant passages, as glimpsed from the garden (below) or near the bathrooms (opposite top right) and entry (opposite top left). The plexiglass of the table tops (opposite bottom) and bar counter (left) punctuate a primarily grey, black, and white space with luminous flashes of color.

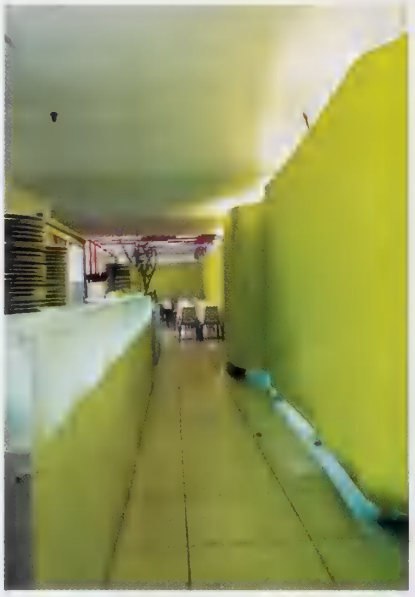




Bot's facade features "pseudo-ornament": a pattern of cutouts, applied with adhesive, that allows peek-a-boo views in (below). The porch (opposite bottom right) and interior rely on bright "non-food" colors, as in the wavy chartreuse wall opposite the open kitchen (right) and the orange-and-pink plexiglass tables (opposite bottom left and top).

1. *Dining*
2. *Dining "porch"*
3. *Open kitchen*
4. *Wavy wall*
5. *Operable facade panels*





square feet, providing for *al fresco* dining without adding any real additional structure, just a porch with an awning overhead and a step down to a garden. A translucent, honeycombed plastic panel slides open to reveal the porch, and a curtain can be pulled shut to separate it from the garden. All this movement blurs the distinction between inside and out, and the building itself seems to "come apart."

Back up front, at the street, a wall of clear glass wraps around the old cast-iron columns of a former storefront bistro, boldly announcing the presence of a new neighbor. The glass wall's four doors can remain open, dissolving the façade onto the street. The glazing is articulated with what Leeser calls "pseudo-ornament": a pattern of cutouts, applied with adhesive, that allows peek-a-boo views of the columns, painted bright orange, and into the space beyond. It's part *Clockwork Orange* and part *2001*, Leeser says, a "millennium restaurant" that looks to the future.

If bright colors alone signal "future," then Bot is it. Along the north wall is a flowing ribbon of drywall painted chartreuse. Cloaking the existing structural elements, it becomes an undulating surface that disguises the transition from interior to exterior. Suspended between ceiling and floor, the backlit wall emits a blue glow along its "hemline," suggesting a petticoat, if not a mysteriously inaccessible space beyond.

These are "non-food colors," Leeser says, though he persuaded the client that chartreuse is the shade of olive oil. The vivid green wall is loud enough to distract diners from the hum of the air conditioners, and the custom pink-and-orange tables bright enough to contrast with plates of pasta. If the color proves too much, diners can look toward the open kitchen that occupies the center of the room, barely hidden by translucent plexi counters, also backlit in blue.

As approaches to interior architecture, the subtlety of Glass and the heat of Bot are like salt and pepper: Both may be set on the table, but their effects are very different. The holder that keeps them together is the restaurant Pod—which chronologically followed Bot and preceded Glass—across the East River in Williamsburg, Brooklyn.

It's a sign of Manhattan's outward migration when a restaurant touting "world-influenced cuisine with Malaysian and Latin twists" opens on North Seventh Street, opposite a roofing contractor's garage and a mixed batch of three-story houses. But Brooklyn offers more room for experimentation, as reflected in Pod's deep, 5,000-square-foot double-height space, which telescopes inward from the street.

Like Bot, Pod features a hot palette of orange with chartreuse and glass facade panels, which open completely to the street (though the glazing is yet to be printed with the transparent tree images Leeser had planned). A precursor to Glass, it forms a "pod," rather than a fuselage, of space and has a coed trough sink (though this one's "off stage").

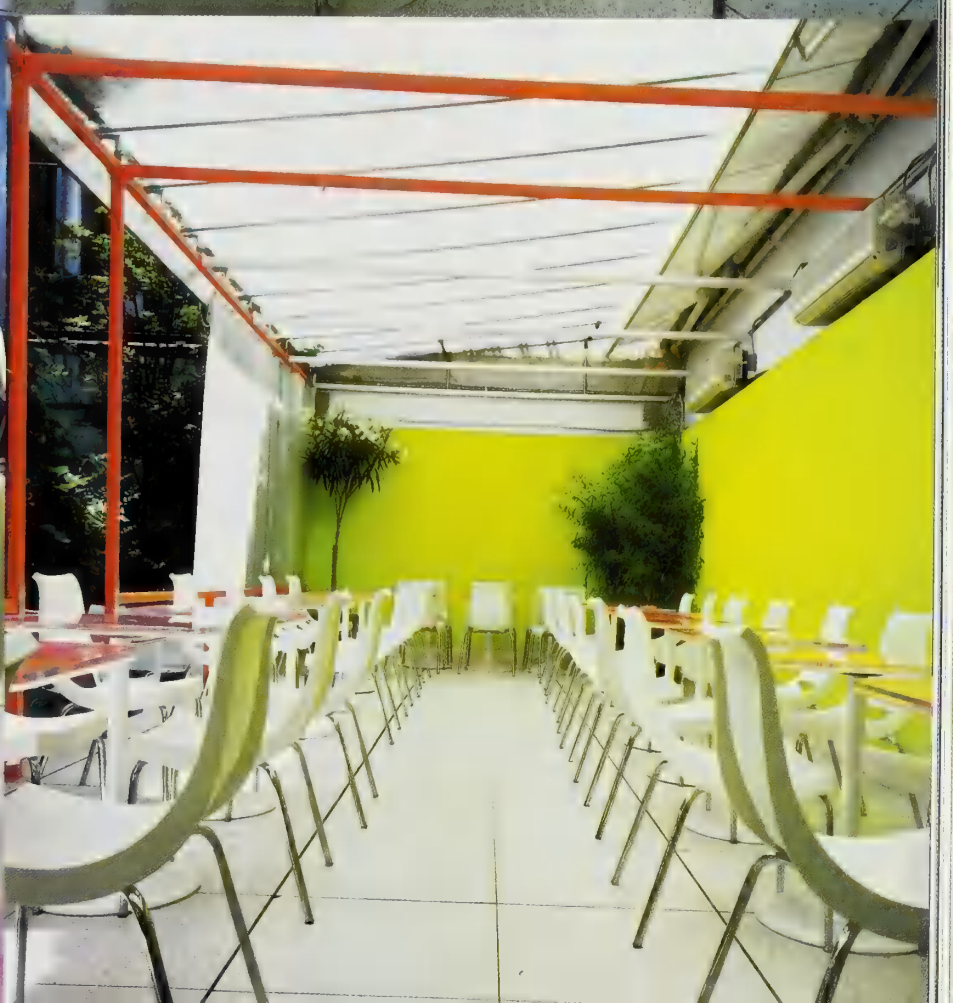
At Pod, Leeser's interest in the everyday takes on an eerie *Twin Peaks* charm with a conceptual "log" in a bold wood-grain veneer, serving as the bar, and images of American trailer parks lining the bar walls. Is Leeser, a native German, poking fun at America? At Brooklyn? Or is he just being playful?

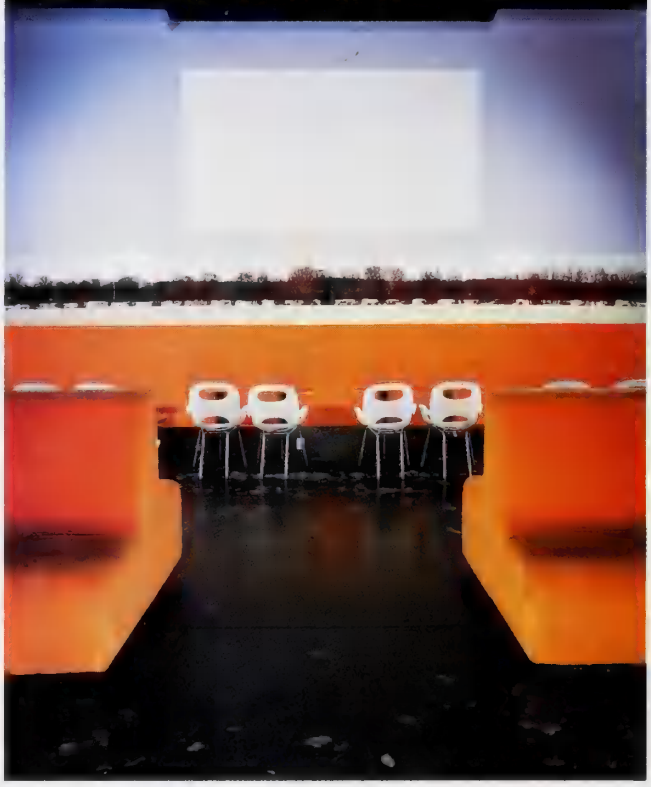
PHOTOGRAPHY: © JUNE PASQUCELLO (THIS PAGE, TOP); THOMAS LEESER (OPPOSITE, BOTTOM LEFT AND TOP)







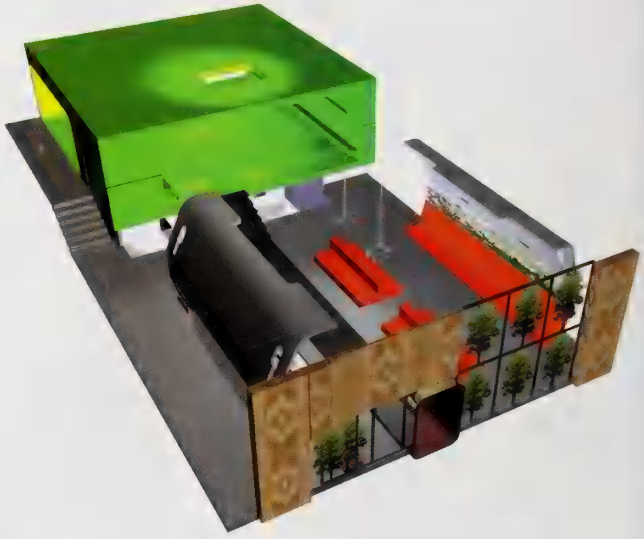






Leeser likens Pod's orange benches (above and below) to bus station seats and the video over the bar (above) to a ballpark screen and an ordinary bar's TV. The yet-unbuilt facade (below) will have transparent trees and plastic lenticular 3-D images of wood grain (below).





"The whole idea of the restaurant is the American suburb," he says. The green room, or pod, is "the house," up several "front steps" from the front lawn/backyard bar area, where the custom table tops sandwich images of wood grain and grass between, once again, sheets of plexiglass. The walls, curving inward as they rise, incorporate video-projection screens, which Leeser likens to the video screens in ballparks (although suburban kids don't play in stadia like that—at least, not yet).

Pod's suburban concept, however, may be better left aside in order to focus on the space itself, where the movement from street to bar to restaûrant telescopes the interior, energetically delivering the message that "something hip is happening here." The seamlessly wrapped dining room's podlike qualities are accentuated by chartreuse paint covering nearly every surface. Even the banquette rolls from the green wall, barely visible until you're on it.

Most revealing about Pod, Glass, and Bot is that Leeser, too, seems to be working from a menu. The vibrant chartreuse, custom plexiglass tables, undulating, space-shaping surfaces, and the public display of private acts have clearly been served up to provoke a reaction. Pod's curried crisped oysters with coconut-wasabi dip are not an everyday menu offering, but they, and Leeser's concoctions, whet the appetite for more. ■

Sources

Tile: *Daltile (Glass); Bella Tile Co. (Pod)*

Flooring: *Allstate rubber (Glass); Stonesource terrazzo (Bot)*

Plexiglass: *Just Plastics bar, tables, and counters (Glass and Bot); custom sink (Glass)*

Faucets: *Kroin (Glass); Speakman (Pod)*

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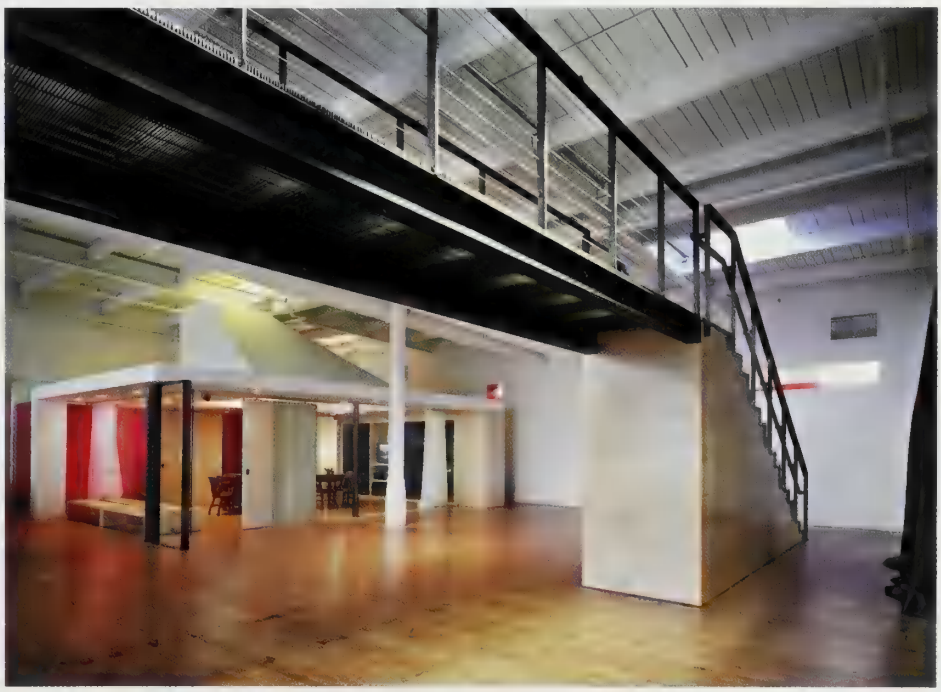




The architects pushed the reception desk (this page), offices, and services to one side to keep the main space open, except for a floating conference room and stair (opposite).

Hanrahan Meyers sculpts space with flashes of light and color at the **SCHROM STUDIOS** across the East River from Manhattan

By Clifford A. Pearson



When the producers of *Sex and the City* shot a scene at the Michael Schrom and Company Studios in Long Island City, they set up their cameras in the conference room, not the stage. That's because the glass-walled, cone-topped conference room saved them the trouble of inventing something hip and cool on the sound stage. Why build a facsimile of an elegantly edgy New York City office space when the real thing was right there?

The same industrial/media aesthetic that grabbed the attention of the *Sex and the City* folks helps Michael Schrom and his partner Carl Sturges market their company to clients looking for a place to produce television commercials. Along with spectacular views of the New York City skyline and generous daylight, the design helps compensate for the company's recent move across the East River and out of Manhattan. Set on the top floor of the Silvercup Studios building (a former bakery that is now a film and video center where *The Sopranos, Sex and the City*, and many movies are shot), the new 16,000-square-foot production-and-office space is twice the size of the company's old location and now benefits from greater proximity to other television production facilities.

Like their clients, architects Victoria Meyers, AIA, and Tom Hanrahan, AIA, fell in love with the raw space and river-dappled light. Their job was to give these elements definition without constricting them, to add character without diminishing their impact. "We started with a simple cardboard model just to get a sense of the envelope," says Meyers of her firm's design process. "Then we began to push the space around to make connections and objects," she adds. "The idea was to eliminate the cubbyhole effect," says Hanrahan, "and make everything one place."

Working with the existing 18-foot-high ceilings, the architects created a conference room that doesn't meet the ceiling, instead floating as a freestanding element, wrapped in clear glass walls. (White silk drapes and a blackout curtain can be pulled for privacy or video viewing.) The only connection between the conference room and the ceiling is the cone, which is faceted and scoops in daylight through a filter of yellow-tinted film sandwiched between two layers of glass. The conical element is like a chimney for light and the warm yellow glow it casts on the conference table evokes the sensation of sitting around a hearth.

To keep the main level as open as possible, Hanrahan and Meyers inserted a mezzanine along the west side of the studios, overlooking the Manhattan views. Placing a work area with glass-topped desks directly above private offices and support rooms, the architects crafted a grand space that employs volume and light as its primary tools. Slicing through this space is a maple-and-metal stair with a steel-grate bridge leading to the mezzanine. Like the conference room, the stair is treated as an object whose freestanding nature only emphasizes the expansive volume around it.

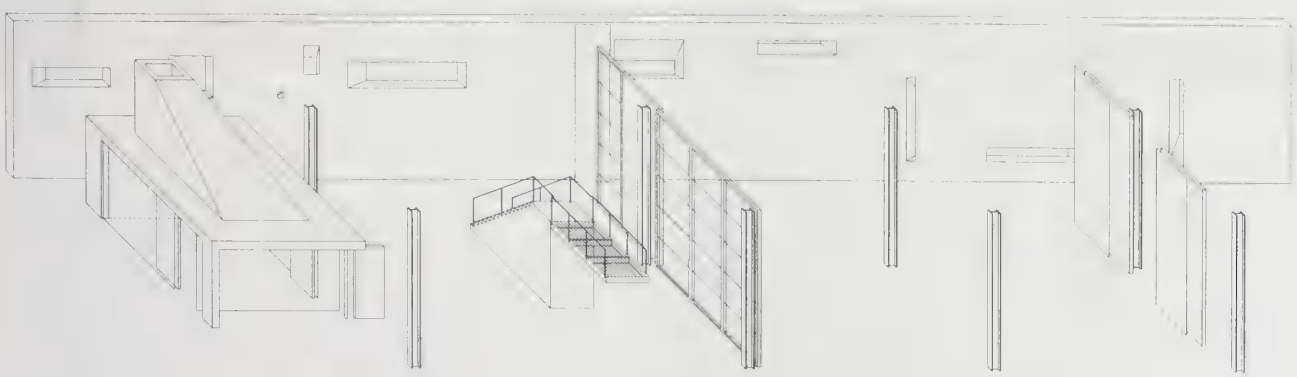
While the north end of the studios handles the program's public functions of greeting, meeting—and wowing—clients, the south serves as

Project: *Michael Schrom and Company Studios*
Long Island City, New York
Architect: *Hanrahan Meyers Architects—Tom Hanrahan, AIA, Victoria Meyers, AIA, partners; Corvin Matei, project architect*
Engineers: *Robert Silman Associates (structural); Bean United, Inc. (mechanical)*
Consultant: *Richard J. Shaver (lighting)*
Subcontractors: *TXT Electric (electrical); Gotham Air (HVAC)*
General Contractor: *Leo Moore & Associates*



Inspired by Dan Flavin's art, the architects stacked fluorescent bulbs under a colored skylight in the conference room. Only a glass wall separates the public area from the stage (opposite).





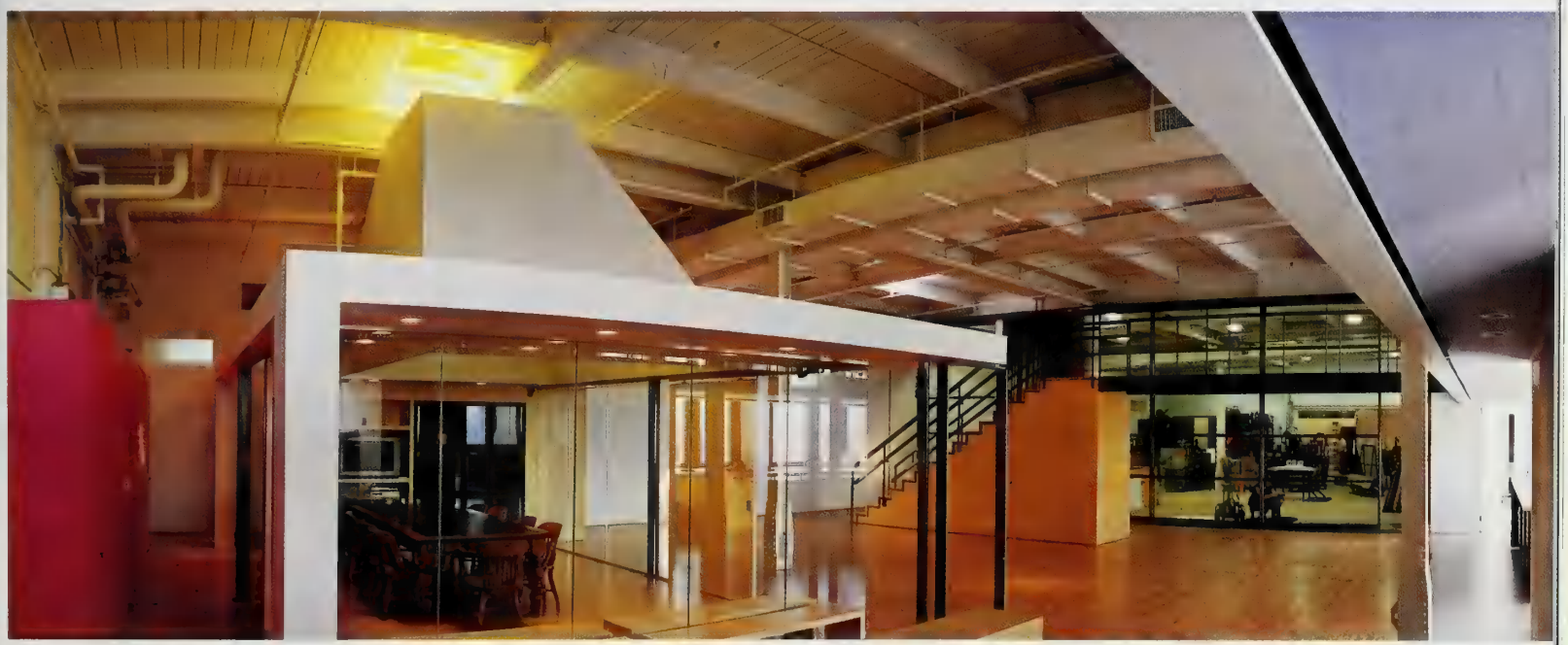


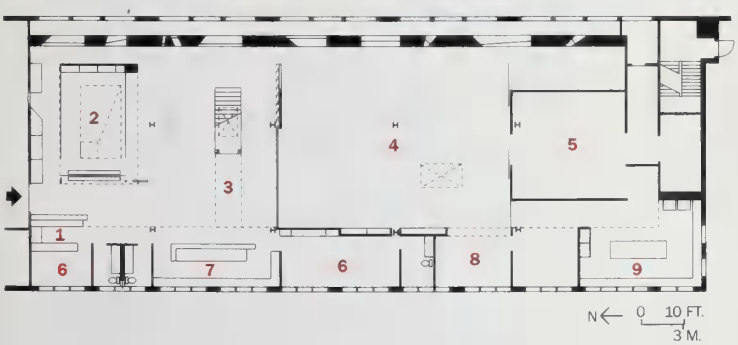
Light monitors carved into a wall offer bursts of color (this page). People often hang out in an open kitchen, under the mezzanine (opposite top). Concentrating offices and work spaces on one side of the plan keeps the rest open (opposite bottom).



the more prosaic production area for shooting commercials, storing equipment, and styling camera-ready food. This area also includes a glass-fronted "client tank" on one side of the stage that allows advertising executives to watch as commercials are shot. Above the tank is a small lounge and makeup area. In most studios, such production spaces are essentially factory floors sequestered behind closed doors. Here, they are separated from the more glamorous administrative spaces only by two-story-high glass doors that slide along floor and ceiling channels. When commercials are shot, a dark green floor-to-ceiling curtain can be closed.

Controlling and manipulating illumination is a recurring theme in the work of Hanrahan and Meyers. In the Schrom Studios, the architects employ a two-part strategy of washing the main public spaces with light through the tall windows on the west and channeling rays through "monitors" carved into a five-foot-deep wall on the east. Recalling Le Corbusier's windows in a chapel at La Tourette, the architects angled the cuts of their monitors and painted some of the inside surfaces vibrant colors such as deep blue, yellow, and coral.





1. *Reception*
2. *Conference*
3. *Bridge (overhead)*
4. *Stage*
5. *Shop*
6. *Office*
7. *Kitchen*
8. *Client tank*
9. *Commercial kitchen*

To maintain the project's lean sensibility, Hanrahan and Meyers kept to a simple material palette: maple woodwork, steel structural elements, and glass walls. "We wanted something that would last 10 years," says Schrom. "We wanted classic Modern, not trendy." And in the highest compliment from someone who collects and races Porsches, Schrom describes Hanrahan and Meyers' work as having a strong "German design influence." In a business known more for its noise than its restraint, the studios' calm demeanor speaks loudly.

Compared with the new Silvercup facilities, Schrom's old digs in Manhattan "were like a cave," recalls Sturges. "At the end of a long day of shooting, you would be really tired and just want to get out of there," he says. "But here, everyone wants to hangs around and enjoy the view." ■

Sources
Structural steel: *East Bay Ironworks*
Glazing: *Ace Glass & Mirror*
Skylights: *Tri-Star Skylights*
Metal doors: *Custom by Gabrielle Shelton*
Sliding-door track: *Hafele*
Woodwork: *Custom by Bench Dogs*
Refrigerator: *Sub-Zero*

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The luminous tanning booths, each with its own large-scale imagery, are staggered, promoting collagelike overlaps. Thus, the whole story is not revealed at once. From the street (opposite), these graphics are potent enough to hold their own amid the strip mall's visual cacophony.

With **ELECTRIC SUN**'s lanternlike volumes and vivid imagery, **Escher** and **GuneWardena** reenvision the strip-mall tanning salon

By David Hay

When actors or models walk into Electric Sun III, the new Los Angeles tanning salon by Escher GuneWardena Architecture, they discover they aren't the only objects of beauty in sight. The salon itself has an artful opulence that's more than just a deft metaphor for physical allure. Above the glistening floor, covered in high-gloss polyester paint, the tanning lights positively glow through the booths' acrylic panels. Some panels are milky white, while others are adorned with colorful, mostly abstract, computer-generated images by artist Jonathan Williams. Especially at night, the tanning booths appear as shimmering lanterns.

Here, Los Angeles-based architects Frank Escher and Ravi GuneWardena have pared back all volumetric forms to their essence, ensuring that the favored design element, light—from the tanning beds, as well as bountiful daylight—rules the salon atmosphere. But creating a magically luminous interior for 13 tanning rooms, as well as reception and service areas, was not easy, especially at this location. Electric Sun III occupies 2,000 square feet on the second floor of "one of the ugliest buildings in L.A.," in Escher's words, a strip mall not 50 yards from the heavily trafficked corner of La Cienega and Beverly Boulevards. Ringed on three sides by floor-to-ceiling windows, this former carpet store is highly visible to pedestrians and people in cars.

And so, the architects decided to take advantage of the space's public profile. "If the customers were exposing their bodies, we thought, why couldn't we expose our interior to the outside?" recalls Escher. But the client, Brian Heberling, was concerned about privacy. Clearly, any exposure would have to be non-literal—inspiring the architects to experiment with light.

In two earlier tanning salons for Heberling, Escher and GuneWardena had achieved an ethereal quality by bouncing and reflecting light, emanating from opaque tanning booths, onto the ceiling. (They do the same at the rear of Electric Sun III where the air-conditioning requirements of higher-powered tanning beds demand rooms with solid walls.)

David Hay lives in Los Angeles, where he often covers architecture and the arts.





Project: *Electric Sun III, Los Angeles*
Architects: *Escher GuneWardena Architecture—Frank Escher, Ravi GuneWardena, AIA, principals; Bajana Banyasz*
Engineers: *Mahdi Aluzri (structural)*
Artist: *Jonathan Williams*
Contractors: *Castle Rock Constr. (general); Air Engineering (mechanical); Dan Filipi (electrical)*

PHOTOGRAPHS: © JOHN ELLIS





The salon's relatively small space is rife with scale play as the fluid images create a metaphoric stage set around human occupants. At the reception desk (this page) and throughout Electric Sun III, people are often cast in silhouette against the illuminated booths.





1. *Reception*
2. *Waiting*
3. *Tanning booth (opaque)*
4. *Tanning booth (translucent)*
5. *Vanity*
6. *Laundry*
7. *Bathroom*
8. *Music*

But the subtlety of such an effect, even more so when viewed from the street, prompted the architects to light up the actual booths. To compete with this intersection's billboards and smaller signage, they realized they'd have to go further. Accordingly, Escher GuneWardena turned to Williams to add imagery to the luminous booths.

Using the Maya computer program employed by animators on the movies *Toy Story* and *Shrek*, the artist built a virtual model of the salon. He spent hours placing images on his model's panels. His choices were eclectic. Williams first took a lily, then a piece of aluminum foil, and put them directly on his scanner. (The foil is an allusion to the silver reflectors ardent

"I JUST WANTED EACH OF MY IMAGES TO HAVE THE DELICACY OF THE ARCHITECTS' FORMS," SAYS WILLIAMS.

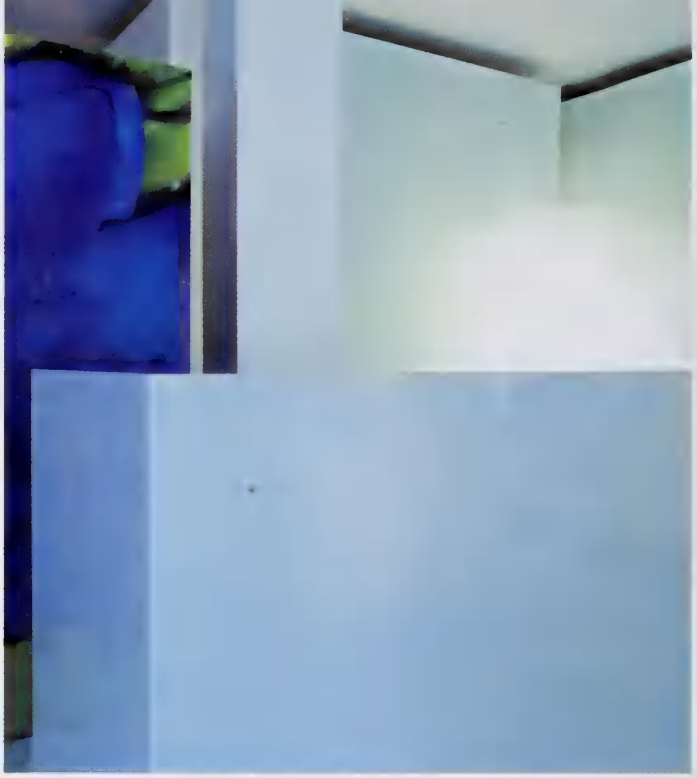
sunbathers once used.) Other ideas came from a stage set for Kabuki theater. Eschewing direct visual connections between his images, Williams says, "I just wanted each one to have the delicacy of Frank and Ravi's forms."

Forty-four computer printouts, laminated on the acrylic panels, appear in the salon. From the outside in daylight, the colorful booths form a collage with the surrounding advertising images. With the onset of darkness, when the buildings fade away and the drably lit billboards recede into the background, Escher and GuneWardena's glowing boxes



To give the images center stage, the other elements—counters, chairs, footstools, light fixtures—were reduced to minimal cubelike volumes, and the floors were painted glossy white.







The collage effect of the tanning-booth imagery (this page), creates a range of striking abstract compositions. These lively graphics play against minimal furnishings, reduced to cubelike forms, as in the light fixture and reception desk (above).

illuminate the boulevard. (Apart from the tanning lights, the cabins can also be lit by custom six-foot-tall rectangular "towers" housing fluorescent tubes encased in white acrylic.)

The architects, of course, also had to consider the experience from inside these steel-framed booths, which range in size from 7-by-9 to 8-by-9.5 feet "We viewed it as an art installation—so we wanted people to notice the images and nothing else," says GuneWardena. Thus, they reduced the benches, lights, and footstools to Minimalist, cubelike forms and took pains to conceal the extensive air-conditioning ducts and returns. All surfaces around and within the booths are covered in high- or semi-gloss finishes, either white or gray, to reflect the "lanterns," instead of competing with them.

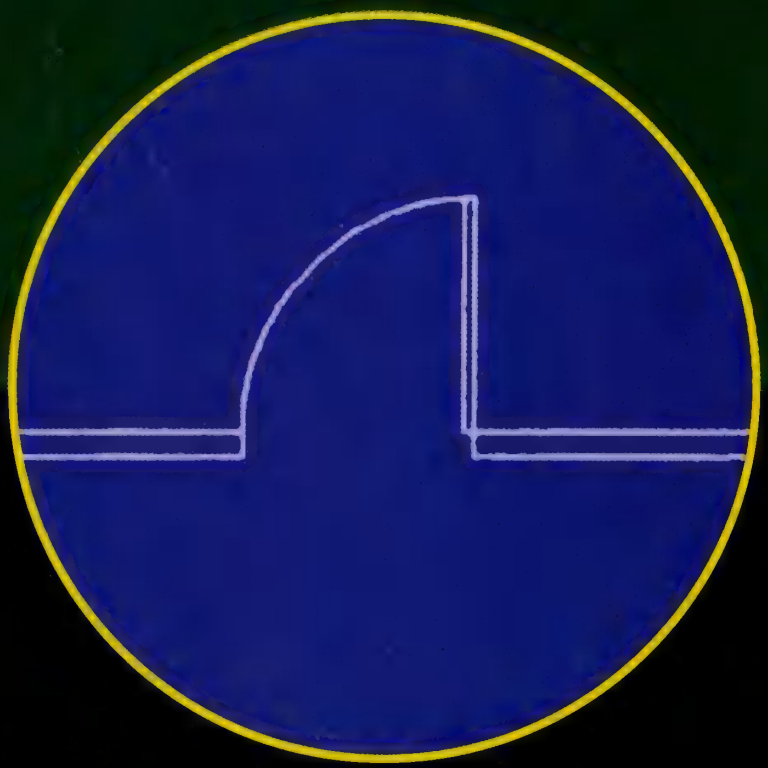
The formal impact of the tanning cabins is exaggerated by the openness of the plan. A wide reception area and generous circulation space leave room for each structure to stand apart from its neighbor. In most cases, the architects staggered the booths, allowing them to hover against the shiny floor, each one like a leading actor on a stage.

The cumulative effect is an interior where small, illuminated temples delicately mirror the narcissistic ambitions of the salon's clients, while, out on the street, the seductive light show lures others toward these same ambitions. ■

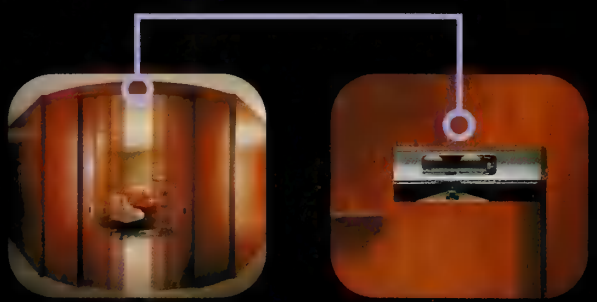
Sources
Paint: *Du Pont (high-gloss floors)*
Sinks: *House of Stainless (custom)*
Faucets: *American Standard*
Toilets: *American Standard*
Lighting: *Karma Kontrol (custom)*

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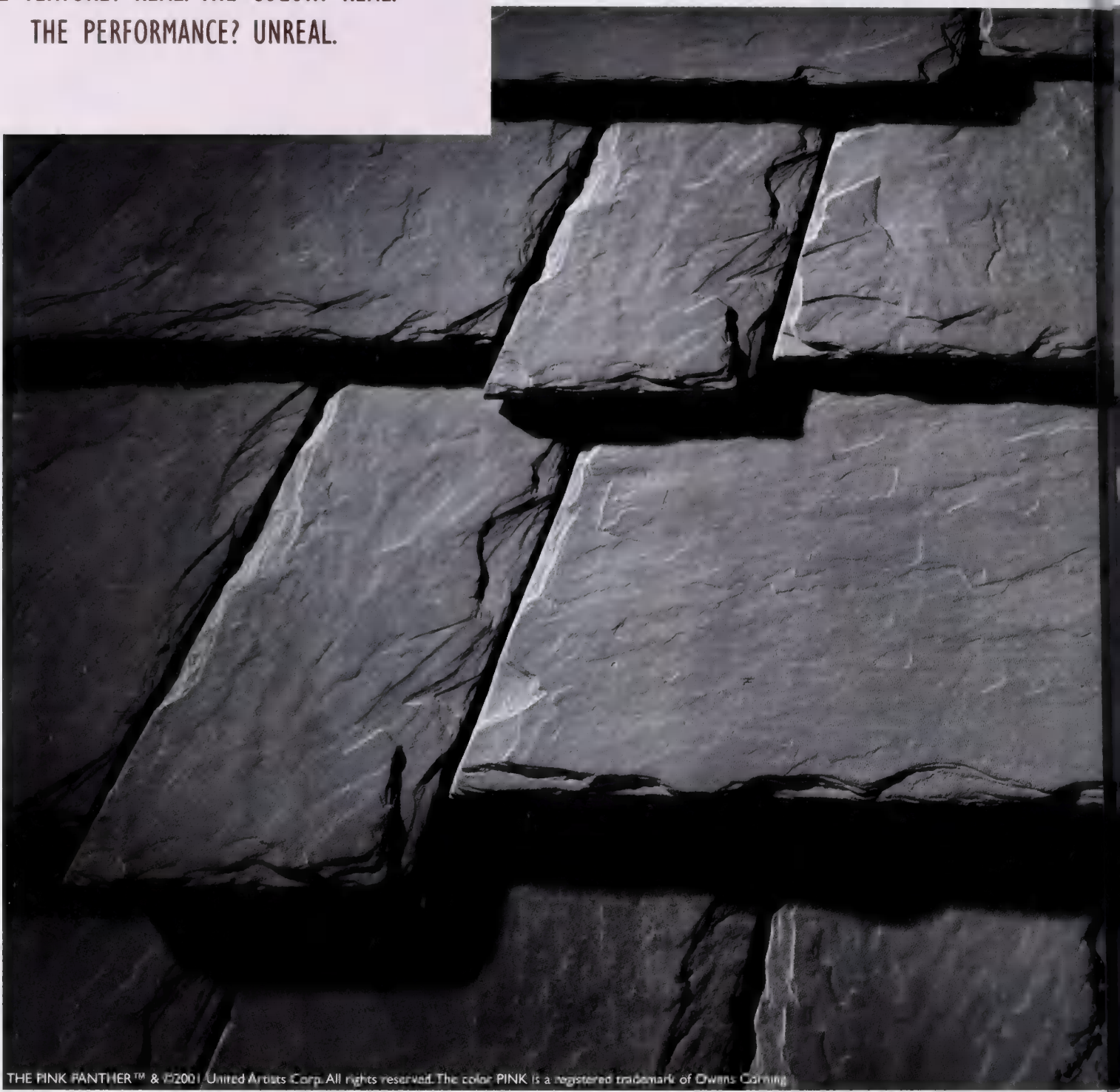
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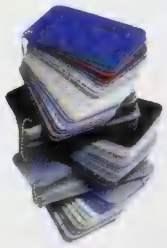








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Public Musings on Acoustical Privacy

IN OFFICES, IT'S NOT ONLY WHAT YOU HEAR BUT WHAT YOU DON'T HEAR THAT MATTERS.

By Michael Chusid

At my first job in an architecture firm, I was berated on more than one occasion for eavesdropping on the conversations of the firm's junior partners. Although my fellow interns and I did pay close attention to what they were saying (how else were we to learn the business?), it also happened to be exceptionally easy to overhear conversations in that office. Working in an open office, the junior partners were consigned to cubicles along the building's masonry and glass perimeter. These hard surfaces reflected their voices directly to the drafting tables occupied by the interns, located merely six feet away. In addition to inhibiting their ability to discuss sensitive work and personal issues, the fact that we could hear the conversations of the junior partners, while sometimes informative, was distracting and surely reduced our productivity.

This example underscores the importance of speech privacy as a crucial concern in the acoustics of office environments. A number of trends have coalesced to make speech privacy an even greater issue today than before. Foremost is the increased use of open office environments. It is estimated that 58 percent of office denizens now work in open offices. Furthermore, many businesses have reduced the space assigned to each employee to lower their overhead expenses. This results in more people and noise in any given room. It also means that people sit closer together, an important factor in acoustics because the intensity of a sound increases exponentially as the distance between the source and receiver is reduced. With many professionals, managers, and even top executives now working in open offices, it's much harder to ignore speech privacy than it was in the days when only the administrative underclass sat at open desks.

Michael Chusid, RA, CSI, CCS, is a frequent contributor to RECORD. *He is principal of Chusid Associates and specializes in building product marketing and technology. He can be reached at www.chusid.com.*

CONTINUING EDUCATION

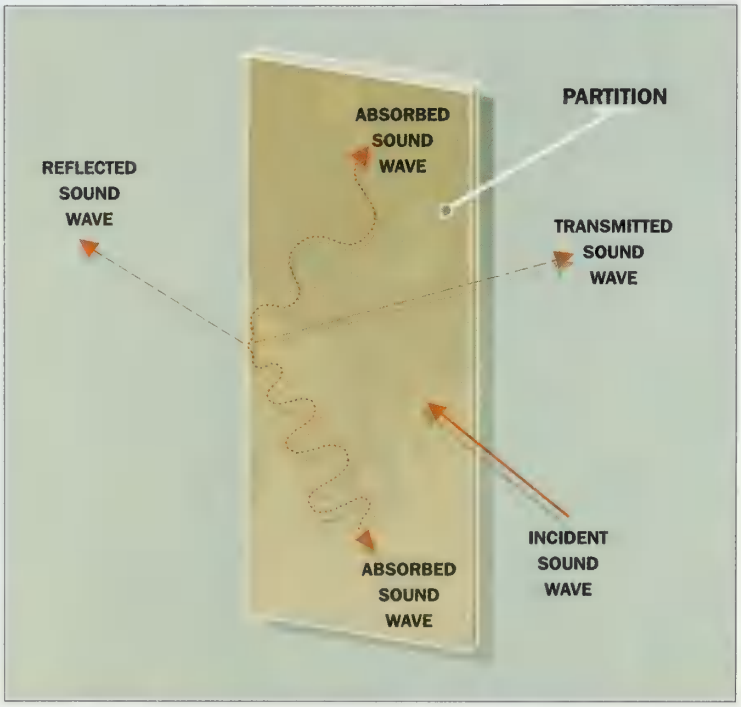
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/*AIA Continuing Education article. To receive credit, turn to page 242 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Describe the growing problems of acoustical privacy in offices.*
2. *Identify ways to mask speech in office environments.*
3. *Explain the role of ceiling systems in acoustical design, and discuss new advances.*

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Building materials reflect or absorb sound. Here, a partition absorbs some sound, reflects some sound, and allows a portion to pass through.

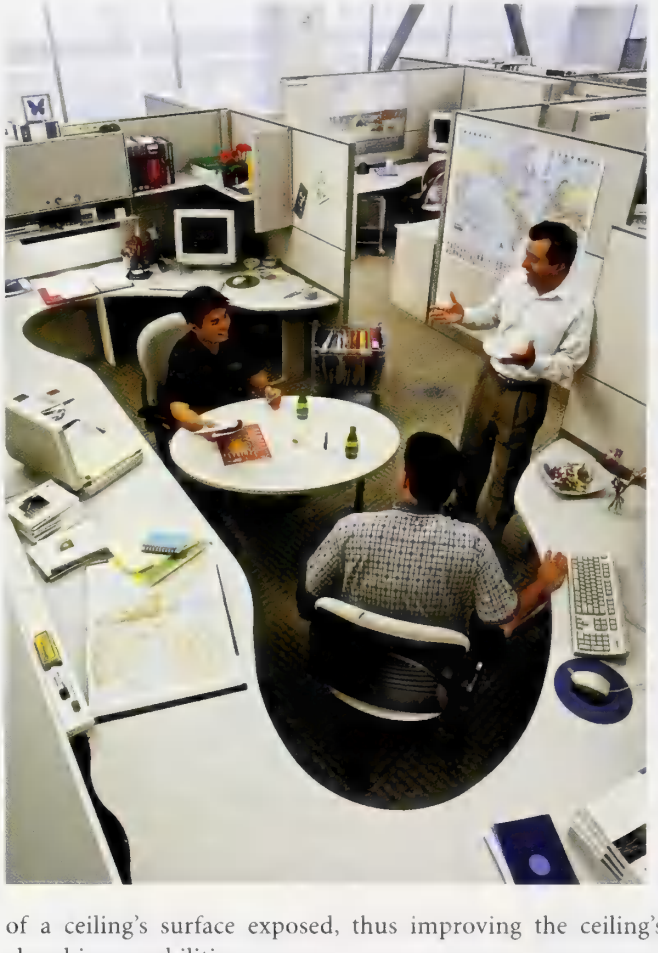
Fundamentals

A comprehensive program of acoustical design should conform to ASTM E1374 - Standard Guide for Open Office Acoustics and Applicable ASTM Standards. According to Charles C. Roy of CCR Associates LLC, a company that provides turnkey solutions for office acoustics, the fundamentals of speech privacy can be expressed as the "ABCs of absorb, block, and cover unwanted acoustical information."

Absorb: The most useful measurement of noise absorption is the noise reduction coefficient (NRC), the arithmetic average of a material's sound absorption coefficients at 250, 500, 1000, and 2000 Hz, rounded to the closest 0.05. These mid-range frequencies are those most commonly associated with speech privacy. Ceiling systems are the primary means of absorbing unwanted sounds in open offices, and the desired NRC for a ceiling depends on a room's noise level and function. While ceiling systems with an NRC of .60 may be adequate for private or small open offices, ceilings with a higher NRC are increasingly desirable in large open offices, for optimum noise attenuation and speech privacy.

Closely related to the absorption of the ceiling system is the type of lighting used. Ceiling-mounted fixtures with large flat lenses can bounce noise from one workstation to another. While troffers with deep parabolic louvers are an improvement, Peter Ngai, vice president of engineering at Peerless Lighting, says there is growing acceptance of pendant-mounted linear fluorescent fixtures. Their narrow, convex profiles are less likely to act as acoustical mirrors, and they leave more

IMAGE ADAPTED FROM "ARCHITECTURAL ACOUSTICS DESIGN GUIDE," MCGRAW-HILL, INC., 2002





At left, partition height is a tradeoff between privacy and accessibility: higher partitions block speech, but lower partitions allow greater visibility. Above, reflective ceilings in the center of a conference room can make it easier for conversations around the table to be heard. Conference room acoustics must also be designed for teleconferencing and multimedia presentations.

of a ceiling's surface exposed, thus improving the ceiling's sound absorbing capabilities.

Block: Sound travels in waves and can be blocked by materials with a sufficiently high sound transmission class (STC), which ranges from zero (no privacy) to 70 (complete privacy). While STC ratings for office furniture partition systems range from 15 to 30 (compared to an STC of 40 to 44 for a ⅝-inch gypsum board partition with 3⅝-inch metal studs), they are an important component in speech privacy. Many cubicle systems feature fabric-covered acoustical insulation surfaces which can reduce noise reflection within a cubicle, but their ability to absorb sound is often compromised by office furniture and papers hung on partitions. The direction of one's voice affects how audible it is to nearby listeners—thus, good cubicle design enables occupants to turn easily toward a partition while engaged in conversation with coworkers or on the phone.

OPEN-PLAN OFFICES, WHICH ARE GAINING POPULARITY, PRESENT SPECIAL CHALLENGES FOR SPEECH PRIVACY AND OTHER ACOUSTICAL CONTROLS.

Partitions less than 60 inches in height lose effectiveness as acoustical barriers because they're not high enough to block the voices of most standing adults. According to Pam Brenner, manager of workplace issues for Steelcase, decisions about partition height often represent a tradeoff between accessibility and privacy needs. Accessibility may be necessary for collaboration and ease of communication within a workgroup. Issues of visual privacy and territoriality must also be taken into consideration.

Blocking sound is also an issue with enclosed private offices and conference rooms. In addition to using a partition system with a satisfactory STC, it is crucial to seal all openings and the perimeter of the partitions to prevent flanking sound. Where confidential levels of speech privacy are required, partitions should be extended through the ceiling and sealed to the structure above. Ductwork and air diffusers should be arranged to prevent sound transmission from space to space. Similarly, doors that face each other on opposite sides of hallways should be staggered to reduce the direct transmission of sound from room to room.

Cover: Designers rely increasingly on sound masking (i.e., background noise) to cover unwanted noise. It is ironic that speech privacy concerns are higher today than they were in the past when office equipment made the workplace even noisier. Gone are the clatter of impact typewriters and daisywheel printers, the clamor of mechanical telephone bells, and rumble of street noise through open windows. Even the whoosh of air flowing through ductwork doesn't always provide background noise, because contemporary energy management systems often dictate the use of variable volume diffusers or other air distribution systems that cycle off for energy conservation. In a quiet office, any speech has a high signal-to-noise ratio

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CASE STUDY

Project: <kpe>, Los Angeles

Architect: *Samuel Anderson Architect, New York*

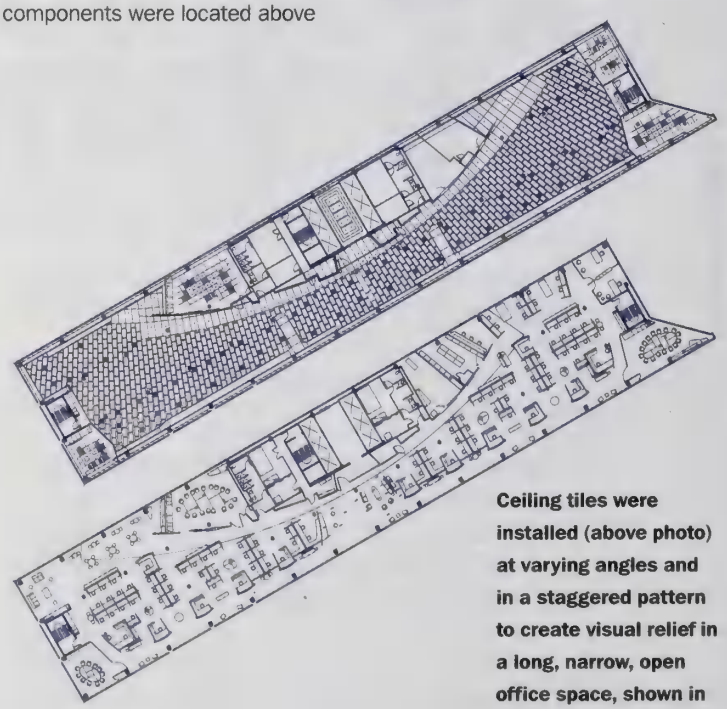


For the new Los Angeles office of <kpe>, an Internet firm working in the entertainment industry, Samuel Anderson Architect was given a narrow floor plate in an existing building and asked to create an unusual and dynamic space appropriate to the client's image. Principal Samuel Anderson said the owner also wanted an open plan that expressed only a "subtle hierarchy" within its staff—the only enclosed spaces in the 19,000-square-foot tenant improvement are two private offices and several rooms for conferences, mechanical and office equipment, and storage. Anderson says that the nature of the client's work allowed them to accept a space that was acoustically brighter than most offices, making the space's glass curtain walls and sealed concrete floor acceptable as interior finishes. According to acoustical consultant Ronald Eligator of Acoustic Dimensions, many tasks didn't need high levels of speech privacy—just a distraction-free environment that could be accomplished with partitions of an appropriate height and an acoustically absorbent ceiling.

The starting point for the ceiling design was the existing fibrous fireproofing on the bottom of the structural slab above the space. Anderson specified an acoustically transparent perforated metal ceiling from Ceilings Plus to conceal overhead mechanical equipment while allowing noise to get, as he puts it, "zapped" by the fireproofing. Additional sound attenuation was created by installing SoundTex acoustical fabric inside the perforated metal panels.

As in most open-plan offices, the ceiling is the largest surface and becomes a dominant visual element. Anderson wanted to break up the surface and avoid a monolithic appearance. To do this, the design called for a gap between each panel. The fireproofing and other above-ceiling elements were painted dark blue to create "the psychological relief that the ceiling had infinite depth." The 2 x 4-foot panels were installed in a staggered running bond arrayed along radiating lines that converged at a point 200 feet outside the building. The visual effect is that the ceiling pattern appears to change as one moves through the space. Depending on one's vantage, the voids between the panels form curved, linear, or zigzag lines. Additional visual relief was created by tilting each panel at a slightly different angle. Together, the ceiling creates the impression of waves rippling through the office and radiating out into the world beyond.

Perforated metal over batt insulation was also used to create sound absorbing panels around the larger, custom-designed workstations intended to be used as conference areas. Partitions around the few enclosed rooms were made of hot-dipped galvanized steel angle frames with infill panels of laminated glass selected to reduce sound transmission. Another key component of the project's acoustical design was careful coordination of architectural and mechanical elements. According to Eligator, ductwork was sized to reduce noise levels and equipped with acoustical linings, and noisy components were located above copy rooms and other service spaces whenever possible. Loudspeakers were installed above the ceiling panels to play music, but a sound-masking system was not required because there was already sufficient background noise for the privacy level required by the client. *MC*



Ceiling tiles were installed (above photo) at varying angles and in a staggered pattern to create visual relief in a long, narrow, open office space, shown in the drawings above.



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CIRCLE 62 ON INQUIRY CARD

that makes it easier for listeners to make out words—which is why sound masking systems have gained popularity.

Additional background noise is generally provided via an electronic sound masking system. According to Dennis Paoletti, FAIA, an acoustician with Shen Milsom & Wilke/Paoletti, today's masking systems are an improvement over the white noise generators of the past. Now, a signal from a random noise generator is fed through an equalizer to create a shaped spectrum tuned to the room's acoustical environment. The ideal, he says, "is to produce a uniform level of background noise so no one notices it." Loudspeakers are then strategically located throughout a space to produce the masking noise. While Armstrong has introduced a ceiling tile with built-in loudspeakers, the best place to mount a masking noise generator, says acoustical consultant Ron Eligator of Acoustic Dimensions, is above a ceiling, so the masking noise can be distributed inside the plenum and produce a more uniform sound field throughout an office.

Design Strategies for Normal Speech Privacy in Open-Plan Offices

DESIGN COMPONENT	GOALS	POTENTIAL PROBLEMS	SOLUTIONS
ABSORPTION	Minimize reflective surfaces in open offices.	Excessive reverberation; hearing noises from distant and adjacent areas.	Add absorptive materials wherever possible, especially on ceiling.
BARRIERS	Block sound transmission for acoustical and visual privacy.	Compromise in already-limited noise reduction effectiveness.	Allow no air gaps; use minimum STC 25 materials; make barriers at least 60 inches tall.
MASKING	Account for low background noise and intrusive noise.	Lack of privacy and intrusive background noise.	Add electronic masking system appropriate for space.
HVAC	Minimize HVAC noise.	Intrusive background noise.	Size designs for minimum flow turbulence; insulate ductwork; use silencers and active noise control when feasible.

Adapted from "Architectural Acoustics Design Guide," Acentech/James Cowan, senior consultant (McGraw-Hill, 2000).

New Dimensions Overhead

Most offices still use the traditional 2 x 4-foot lay-in ceiling, and new types of mineral fiber, wood, and fabric-covered panels have been introduced by several manufacturers to address the needs of open offices. Designers are increasingly eschewing the Cartesian world of the rectangular grid by seeking variations in ceiling scale, shape and trim, and using materials that can be morphed into three-dimensional forms. A manifestation of this trend is that perforated metal ceilings are now at home in office environments. Vaults, domes, and other unique configurations have become more feasible due to advances in CAD and computer-aided metal-forming techniques. Perforated metal also offers designers a new



In large open-office areas, vaults and other three-dimensional configurations provide relief from visual monotony and create a better sense of orientation. The use of larger panels is in keeping with the scale of the room.

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pallette of visual aesthetics: A wide range of metals and finishes can be specified; perforation patterns can be customized to control a ceiling's opacity and luminosity; and panels can be integrated with lighting, air distribution, and other services. Nancy Mercolino, president of Ceilings Plus, a metal ceiling producer, notes, "Metal panels are lightweight, easy to install, and provide easy access to cabling and equipment located in ceiling plenums."

Though metal does not absorb sound, perforations make the panels acoustically transparent so they can be used to support and cover sound absorbing materials. A new type of acoustical insulation, non-woven fabric, has been engineered specifically for this application. One non-woven product, SoundTex, is manufactured by Freundenberg Nonwovens Limited and is only 0.2 mm thick. When factory-laminated to the back of a perforated panel, it creates resistance to airflow and dissipates noise by converting vibrational energy into heat. This new acoustic insulation can be used where concerns about airborne glass fibers may limit the use of traditional acoustical materials. Recent tests conducted by Ceilings Plus showed that its panels had an NRC of up to .75 when used with non-woven fabric insulation and up to .90 with one inch of glass fiber insulation. Other manufacturers of metal ceilings are beginning to compile data on acoustical performance of their ceiling systems as well.

Design Strategies for Background Noise Control

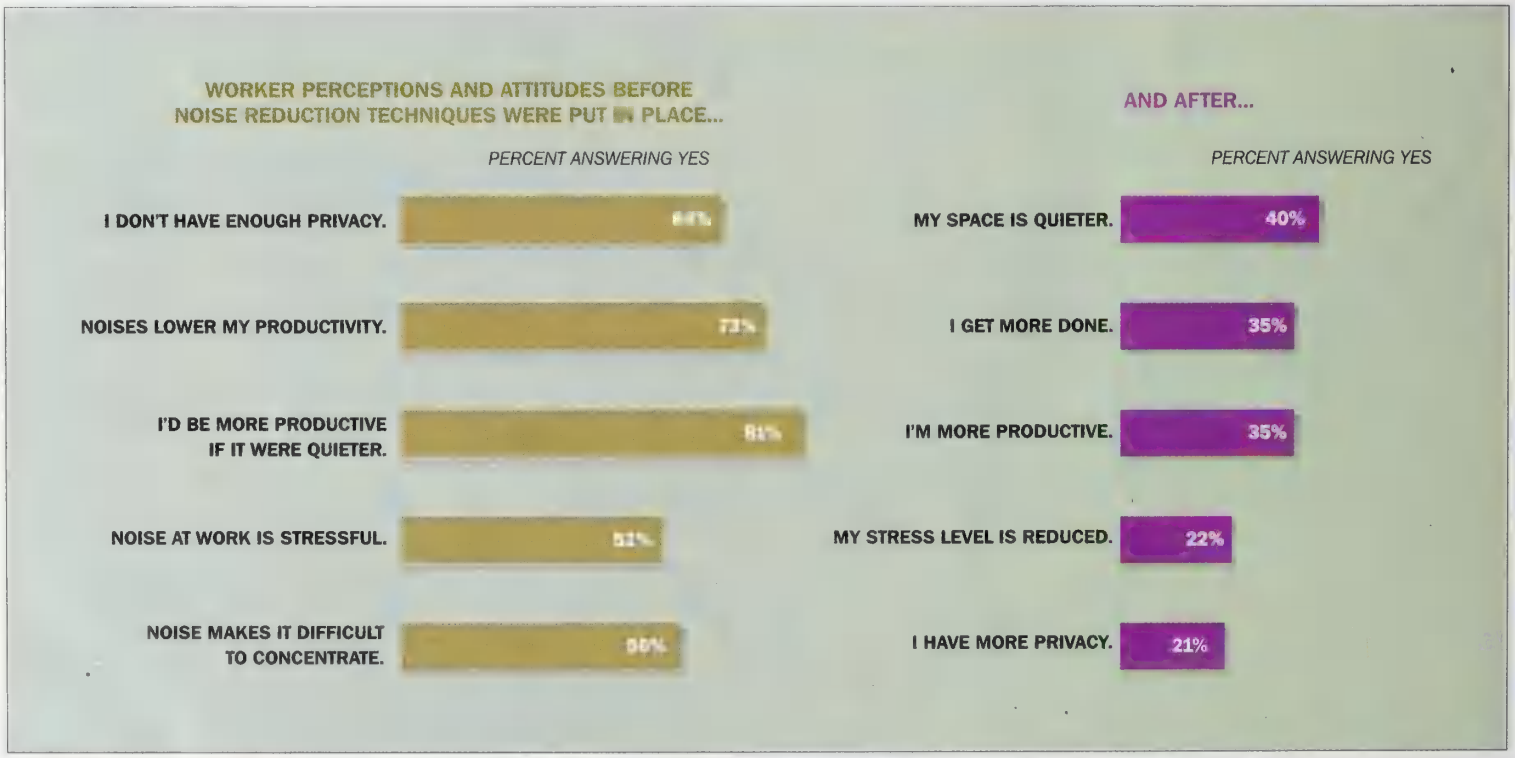
DESIGN COMPONENT	DESIGN CONSIDERATIONS	POTENTIAL PROBLEMS	SOLUTIONS
ABSORPTION	Reflective surfaces can increase annoying background noise and degrade privacy.	Excessive reverberation; hearing noises from distant areas of open offices.	Add absorptive materials wherever possible, especially on ceiling.
MASKING	Low background sound level and intrusive noise are present..	Lack of privacy and intrusive background noise.	Allow no air gaps; use minimum STC 25 materials; make barriers at least 60 inches tall.
HVAC	HVAC noise should be minimized.	Intrusive background noise.	Add electronic masking system appropriate for space.
SOUND ISOLATION	Intrusive sound from other rooms or outdoors should be minimized	Intrusive background noise.	Size designs for minimum flow turbulence; insulate ductwork; use silencers and active noise control when feasible.

Adapted from "Architectural Acoustics Design Guide," Acentech/James Cowan, senior consultant (McGraw-Hill, 2000).

Design Soundings

The fundamentals of good acoustics are well understood, but the challenge remains to harness the physics of sound in the service of architecture. This charge has become more daunting since designers, influenced perhaps by the irreverent trappings of the dot-com industry, are using stylistic motifs which may look fresh but which make acoustical control more difficult. For example, omitting a suspended ceiling can increase reverberation time, exaggerate the impact of noise produced by the mechanical system, and expose hard, reflective structural surfaces. To produce acceptable results, a designer must begin by understanding the types of work to be performed in a space and assessing the firm's work style and corporate culture.

While telecommuting may allow a lucky few to work in the pastoral quiet of a mountain glade, the open-office concept continues to gain momentum in many businesses, and such projects continue to



A study conducted by the American Society of Interior Designers focused on identifying how workers in an open-office environment felt about noise in the workplace. The office in question was undergoing noise abatement measures. A majority of workers agreed that excessive noise is distracting and lowered their productivity, although responses after noise abatement measures were somewhat mixed.

SONY

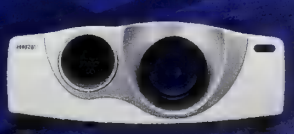
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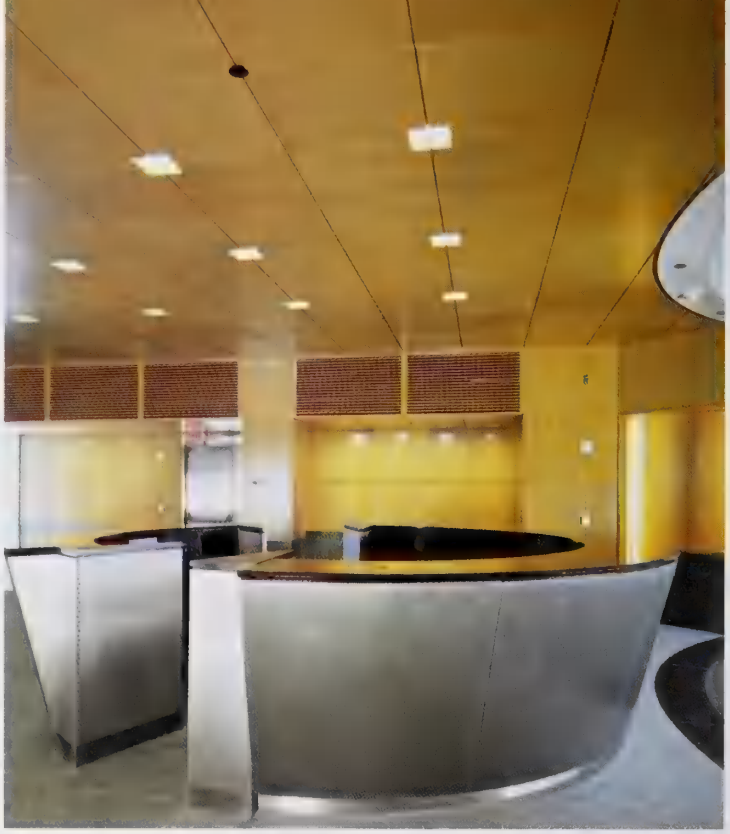
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grow in size. Fletcher Thompson, Inc., an architecture, engineering, and interior design firm, recently completed a corporate headquarters in which 250 employees work in one 45,000-square-foot "room." Designed to support collaboration and teaming, the facility "has a hushed but vibrant quality, like the main reading room at the New York Public Library," notes Douglas Disbrow, the studio design leader.

Many prognosticators say that office acoustical privacy concerns will only get more serious as digital technologies continue to change the workplace. To the existing volume of speakerphones, wireless telephones, and audible computer prompts will be added even more teleconferencing, voice recognition software, and desktop multimedia software.

If these trends continue, there may be a limit to what can be achieved through acoustical abatement. Are we all doomed, then, to wear earplugs just to hear ourselves think? Or instead, will we see the fostering of a new type of corporate behavior in the workplace? Brenner suggests, for example, that co-workers should send calls directly to their voice mail without ringing when they are away from their workstations. She cites another example of a salesman who was trained to stand when making important calls to convey energy and strength. When he was moved from a private to an open office, he had to learn to sit when speaking so his voice wouldn't sail into neighboring cubicles.

If such an epidemic of civility does break out, I will have only one regret—that it didn't happen 20 years sooner, when I was still working in that noisy architectural office. ■



A custom beech perforated-wood ceiling was used in conjunction with nonwoven acoustical fabric for this office space in Los Angeles.

PHOTOGRAPHY COURTESY CEILINGS PLUS

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Public Musings on Acoustical Privacy" using the learning objectives provided.**
- **Complete the questions below, then check your answers [page 242].**
- **Fill out and submit the AIA/CES education reporting form [page 242] or file the form on ARCHITECTURAL RECORD's Web site at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. What are the ABCs of acoustical privacy?

2. What are the design tradeoffs in limiting the height of office partitions?

3. What is the role of ceilings in an open-plan office?

4. What acoustical considerations must be given to a facility's air distribution system?

5. Why have perforated metal ceilings become more popular?

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by: Brendan Deely
General Manager
USG Corporation Industrial Products

Thanks to their quick, cost-effective installation, light weight and excellent performance characteristics, poured gypsum floor underlayments have emerged as a leading choice for a wide range of commercial, institutional, residential and renovation applications.

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Use the learning objectives below to focus your study as you read **GYPSUM CONCRETE FLOOR UNDERLAYMENTS ARE STRONGER THAN EVER**. To earn one AIA/CES Learning Unit including one hour of health safety credit, answer the questions on page 179, check the answers on page 242 and follow the reporting instructions on page 244 or, use the Continuing Education self report form located at www.architecturalrecord.com.

LEARNING OBJECTIVES:

- Describe the applications where gypsum concrete underlayment can be used.
- List the benefits of poured gypsum concrete underlayment.
- Specify a poured gypsum installation.

Although the products have been used for more than 50 years, only recently have they begun to realize their full potential. Leading manufacturers now offer complete specification and application packages, which include networks of trained applicators, strict quality control procedures and full product lines designed to deliver optimal performance for specific job requirements.

Gypsum concrete underlayments are currently a dominant choice in multifamily construction, and their use is escalating rapidly in commercial markets. The growth in commercial applications is driven largely by recent increases in compressive strength performance. Minimum gypsum concrete underlayment compressive strength standards, which historically were set at 1,000 to 1,500 psi, have now nearly doubled to 2,500 psi.

While not all gypsum concrete underlayment manufacturers and applicators offer minimum-strength 2,500-psi products, those that do provide architects with a practical, cost-efficient flooring solution that reliably meets a wide range of performance and application requirements. These high-strength products withstand heavy construction traffic without powdering, dusting, chipping or cracking. They also offer improved flowability, which makes them almost completely self-leveling, reducing application time and finished floor preparation time.

WIDE-RANGING APPLICATIONS

In multifamily and single-family construction, gypsum concrete underlayments provide needed sound control and fire resistance in a lightweight formulation. They also provide an ideal thermal mass for radiant heat applications, ensuring uniform heat distribution throughout the entire floor surface.

In new commercial construction, gypsum concrete underlayments are typically applied over structural concrete or precast concrete planks to create a smooth, monolithic floor surface that delivers superior strength, sound control and fire resistance. The product sets quickly, allowing foot traffic within two hours and continued construction activities the next day.

Gypsum concrete underlayments are also ideal



The existing concrete floors in this renovated 26-story office building in downtown Philadelphia were cracked and uneven.



Approximately 525,000 sq. ft. of gypsum concrete underlayment (shown freshly poured) was applied over the existing floors throughout the building.



The new gypsum concrete underlayment provides a smooth, even surface, ready for floor finish material installation. The entire application was completed for less than half the cost of using a portland cement-based product.

leveling or resurfacing materials in commercial renovation. They apply from featheredge to 3-inch thicknesses in a single application. Thicker applications can be achieved through multiple lifts (multiple layers) or by applying the product over a high-density substrate panel.

Gypsum concrete underlayments bond strongly to existing concrete and other floor surfaces, and require minimal surface preparation. Unlike portland cement products, which often require "shot blasting" (an expensive and time-consuming process that involves shooting small metal pellets into existing concrete to roughen the surface), poured gypsum flooring simply requires cleaning and priming. This makes gypsum concrete underlayment the quickest and most cost-efficient option for transforming worn, cracked and uneven floors into smooth, high-strength surfaces ready for the application of finish materials.

GYPSUM UNDERLAYMENT ADVANTAGES

Gypsum concrete underlayments offer a wide range of performance features and application benefits. They accept virtually any type of floor covering, including vinyl composition tile, ceramic tile, wood laminate, glued-down hardwood and carpeting.

Because they can be applied thinner than portland cement products, gypsum concrete underlayments are lightweight, making them ideal for wood-framed buildings where concrete-based alternatives may require structural alterations. A 3/4-inch-thick gypsum concrete underlayment floor weighs approximately 6.25 to 7.5 pounds per square foot and has a dry density of only about 115 to 125 pounds per cubic foot.

Gypsum concrete underlayment assemblies offer UL-certified fire ratings of up to two hours. The floor's fire resistance is due to the fact that gypsum is naturally fire resistant. When exposed to flame, it releases moisture in the form of steam, thereby slowing heat transmission.

Sound control is another key benefit of these flooring systems. The excellent acoustical properties of a poured gypsum floor result from the product's mass, combined with the fact that the underlayment does not shrink as it sets. Unlike portland cement products, which shrink, gypsum concrete underlayments seek and fill cracks and joints, a major source of sound leakage between floors. Gypsum concrete underlayment floor assemblies deliver STC (Sound Transmission Class) ratings in the high 60s and IIC (Impact Insulation Class) ratings of 55 and higher, even with hard-surface floor coverings.

Gypsum concrete underlayments also install quickly and cost-effectively. The product consists of a formulated gypsum cement mixed with sand and water. The resulting slurry is pumped and poured in place, then "screeded" to a smooth, monolithic surface. Depending on the floor layout, up to 30,000 sq. ft. of gypsum concrete underlayment (3/4 inch thick) can be applied in a single day.

A 3/4-inch poured gypsum floor is usually fully dry – and ready for floor finish application – within five to seven days, when properly ventilated and temperatures are maintained above 50 degrees F. This compares favorably with concrete, which never stops curing and usually requires at least 30 days before floor finish materials can be applied.

SPECIFICATION ISSUES

When specifying gypsum concrete underlayments, architects must match product performance with project requirements. Compressive strength is a key consideration. Expected psi strength requirements should be spelled out clearly as part of the underlayment specification. However, when creating the specification, remember that gypsum concrete underlayment strength is impacted by a number of factors, including the quality of raw materials used, on-site design mix and application techniques. To ensure against any of these variables negatively impacting floor performance, it is advisable to "overspecify" a gypsum concrete underlayment floor, rather than select a product that just meets minimum strength requirements. Higher-strength products deliver a minimum 2,500 psi and provide a cost-effective means of ensuring that minimum performance requirements are met or exceeded. These higher-strength formulations require no additional labor or time to apply.

Products in the 2,000 to 2,500 psi range are recommended for multifamily and single-family construction. For light-commercial applications, specially formulated products delivering 3,000 to 3,500 psi are recommended. Generally speaking, 3,000 to 3,500 psi is suitable for hotels, motels, retail stores, offices and similar applications. The higher strengths these products deliver ensures that the underlayment will stand up to heavier trade construction activities typically associated with

(continued on p. 178)



Due to its light weight and excellent sound control properties, gypsum concrete underlayment is the leading underlayment choice for multifamily construction.

EVEN MOUNTAIN CLIMBERS APPRECIATE SMOOTH FLOORS

Erehwon Mountain Outfitters specializes in providing customers with equipment and gear to deal with rough outdoor terrain. But when the company decided to open a new retail location in an existing Orland Park, Ill., mall, it found itself facing a surface problem that couldn't be solved with harnesses, clips and climbing boots.

The 18,500-sq.-ft. retail space, which had been vacant for a number of years, had a concrete and terrazzo floor that was uneven and cracked. A complete resurfacing was required. The new floor surface would be covered with two types of carpeting and hardwood flooring, and would serve as an exposed wearing surface (protected by a sealer) on store walkway areas.

General contractor and project designer Graystar Corporation called in Barrier Corp., a Morton Grove, Ill.-based specialist in floor leveling, underlayments, toppings and coatings, to assess the situation.

Barrier Corp. president Paul Helmer offered one solution – LEVELROCK™ 3500 Brand Floor Underlayment, a poured gypsum concrete underlayment from USG Corporation Industrial Products.

"It was the only product that made sense for the job," said Helmer. "It bonds directly to concrete and terrazzo with minimal preparation. It also offers the flowability to enable us to go from featheredge to 3 inches thick to completely level the surface. And finally, it delivers the compressive strength (a minimum of 3,500 psi) to stand up as a wearing surface in the walkway areas."

To accomplish the job, Barrier crews cleaned and spray-primed the existing floor surface, and caulked all perimeter joints. They determined the existing floor elevations using a laser level. Based on the laser results, the floor was "pinned" with elevation pins to mark the exact thickness that the gypsum underlayment needed to be poured to achieve a level surface.

The underlayment was then mixed and pumped into the building, where it was poured over the surface and screeded to the thickness of the elevation pins.

The end result – an exceptionally smooth, high-strength floor surface – ensures that Erehwon's customers won't be encountering flooring peaks or valleys as they gear up for the next climb.



Skip Pastore, site manager for Barrier Corp., reviews construction plans following application of the gypsum concrete underlayment floor. The floor is ready for continued trade traffic within 24 hours.

ANATOMY OF A GYPSUM UNDERLAYMENT APPLICATION

A step-by-step look at the application of gypsum concrete underlayment during renovation of a new retail location for Erehwon Mountain Outfitters in Orland Park, Illinois.



The existing concrete and terrazzo floors in the 18,500-sq.-ft. retail location space were cracked and uneven.



Barrier Corp. flooring applicator crews used a laser to measure existing floor elevations.



Based on the laser results, elevation pins were attached to the floor to indicate how thick the underlayment should be applied.



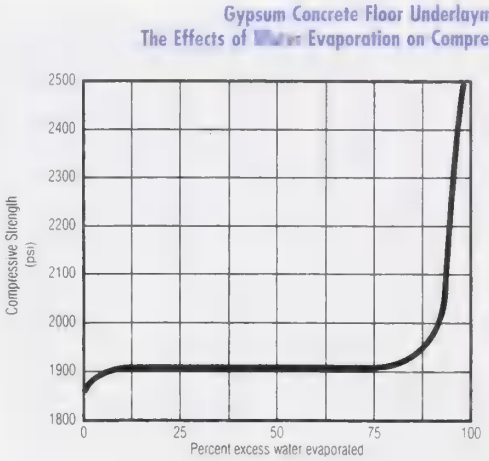
Bags of gypsum concrete underlayment were mixed with sand and water to create a slurry.



The gypsum underlayment mix was pumped via hoses and poured directly onto the floor.



The underlayment was screeded to the thickness of the elevation pins to achieve a smooth, even surface.



The compressive strength of gypsum concrete underlayment increases only slightly until 93 percent of the moisture has been removed from the floor.

commercial construction and, of course, heavier use after the project is completed.

Strengths of 4,500 psi and higher are available, and should be specified for heavy-use commercial and institutional applications. This especially holds true when specifying the underlayment for floor leveling or repair applications over concrete substrates in heavy traffic areas.

No matter what the application, remember that performance and application are impacted by the on-site design mix. High-performance gypsum concrete underlayments utilize low-water-demand formulations. When these products are overwatered, the floor strength is significantly diminished, resulting in a loss of compressive strength.

Overwatering also frequently produces a chalky surface film that negatively impacts the adhesion of glued-down floor finishes.

Another consideration is the quantity and quality of sand that is added to the mix. Oversanding, like overwatering, diminishes the strength of the floor. Likewise, the type of sand used impacts performance. A clean, sharp, properly graded sand aggregate (per ASTM C33), commonly referred to as plaster or masonry sand, is recommended for most applications.

Yet another consideration is drying time. Gypsum underlayments do not cure like portland cement, but hydrate (set) instead. After the initial chemical set, gypsum concrete underlayments continue to gain strength as the remaining free moisture evaporates. (See chart.) The majority of the free water in the floor must be removed before the strength of the underlayment is fully realized.

Architects can effectively neutralize all these design mix variables through two strategies: specifying higher-strength products and insisting on using only manufacturer-trained applicators. Licensed applicators understand the critical importance that sand and water have on the design mix. They will conduct on-site "slump" tests to measure design mix and product flow. Top applicators will also provide compressive strength reports. The reports, made from on-site cube samples, are the only way to determine actual performance for a specific floor application.

Other key specification criteria for gypsum concrete underlayments include:

- The building interior must be enclosed before, during and after installation, and a temperature of at least 50 degrees F must be maintained. When properly ventilated, a gypsum cement underlayment will usually attain full strength within five to seven days.
- The subfloor must be clean, dry and structurally sound.
- Apply a manufacturer-approved primer or bonding agent just prior to pouring the underlayment.
- Gypsum concrete underlayment should be applied a minimum 3/4 inch thick over wood framing and typically 3/8 to 1/2 inch thick over plank or poured-in-place concrete.
- After the floor has dried, it should be sealed using a manufacturer-approved sealer to minimize dusting when glued-down floor finishes will be applied.

A RELIABLE SOLUTION

Gypsum concrete underlayments have come a long way in recent years. They now give architects reliable and practical solutions for a variety of flooring needs. The products are used and recommended by many of the largest and best flooring and underlayment contractors in the business. And most importantly, gypsum concrete underlayments themselves are stronger than ever.

Today's top-of-the-line gypsum concrete underlayments offer almost double the compressive strength that products typically delivered 10 to 15 years ago. As a result, architects are now able to specify poured gypsum underlayments with complete confidence ... and take advantage of the fire resistance, acoustical performance and application versatility that these products provide.

CHOICES FOR RESIDENTIAL FLOOR UNDERLAYMENTS

While gypsum concrete underlayments offer attractive performance upgrades for residential construction, wood-based panel underlayments, such as plywood, OSB (oriented strand board) and lauan remain the dominant choice for single-family construction.

However, there is one residential application where gypsum underlayments are experiencing rapid growth. Specially formulated products, such as USG's LEVELROCK Brand floor underlayment-RH (Radiant Heat), provide excellent thermal mass for radiant heat floors, ensuring even distribution of heat over the entire floor.

For more conventional single-family floor applications, underlayment selection is generally based on the type of floor finish to be used. For carpeting, OSB is suitable from a performance standpoint. However, OSB is not a viable option under vinyl, as the rough surface of the panel may eventually show through the floor finish. To remedy this situation, a 1/4-inch-thick board of sanded lauan is often installed over the OSB substrate before laying down the vinyl.

A recently introduced gypsum/fiber underlayment panel offers a practical, labor-saving alternative. FIBEROCK® Brand Underlayment–AQUA-TOUGH™ from USG delivers up to 60 percent more indentation resistance than traditional products, while ensuring a smooth, flat surface with no bumps or ridges to telegraph through. Additionally, the panel contains no resins, adhesives, solvents or dyes that can stain floor-covering materials.



For residential construction, FIBEROCK Brand Underlayment–AQUA-TOUGH™ offers a high-performance alternative to wood-based underlayments. The gypsum/fiber product is up to 60 percent more indentation resistant than traditional panels.

LEARNING OBJECTIVES

- Describe the applications where gypsum concrete underlayment can be used.
- List the benefits of poured gypsum concrete underlayment.
- Specify a poured gypsum installation.

INSTRUCTIONS:

Refer to the learning objectives above. Complete the questions below. Then turn to page 242 and check your answers. Fill out the self report form on page 244 and submit it or use the Continuing Education self report form on *Record's* web site - www.architecturalrecord.com - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:

1. What are the benefits of using gypsum concrete underlayments?

2. What are the key factors to bear in mind when specifying gypsum concrete underlayments?

3. Why is the gypsum concrete underlayment design mix an important consideration?

4. Why is gypsum concrete underlayment a good choice for multifamily housing?

5. How do gypsum concrete underlayments compare to portland cement-based alternatives?

ABOUT USG

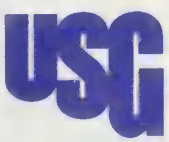
USG is a Fortune 500 company with subsidiaries that are market leaders in their key product groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling tile and grid; and building products distribution.

LEVELROCK™ Brand Floor Underlayment, recently introduced by USG Corporation Industrial Products, is establishing new performance standards for gypsum concrete underlayments. LEVELROCK Brand products offer a minimum compressive strength of 2,500 psi, which is nearly double the compressive strength of competing entry level gypsum concrete products. Compressive strengths as high as 5,500 psi are available.

LEVELROCK Brand products offer ideal solutions for commercial, multifamily and single-family new construction and renovation. The underlayments are installed by a network of trained contractors who work closely with on-site USG quality control teams.

For more information on LEVELROCK Brand Floor Underlayment, write USG Corporation Industrial Products, P.O. Box 806278, Chicago, IL 60680-4124, call USG at 800-487-4431 or visit the USG Corporation Industrial Products Web site at www.gypsumsolutions.com.

For information about other products from USG, visit the USG Web site at www.usg.com.



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WHY METREON–A SONY ENTERTAINMENT CENTER RELIES ON SLOAN FLUSHOMETERS AND FAUCETS

The recently opened METREON–A SONY ENTERTAINMENT CENTER chose Sloan Optima® Plus Flushometers that integrate electronics and time-tested hydromechanics. For example, Sloan's Perfect Sense® EL-1500 Optima sensor utilizes advanced electronics that adjust automatically to surroundings. Sloan Optima Flushometers have their own LED diagnostics. The Optima system automatically flushes after 24 hours of non-use assuring fresher restrooms.

Sloan's Optima PLUS® EBF-85 faucet was chosen because it is the world's first battery operated fiber-optic faucet. It blends fiber-optic and infrared technology to sense user's hands. It also adjusts to its changing environment without manual adjustment and emits an audible signal when the battery life is low.

Sloan's electronic products match the sophisticated environment of this 350,000 sq. ft. technology, entertainment center which boasts the most powerful and interactive web site on the internet today, **www.METREON.com.**

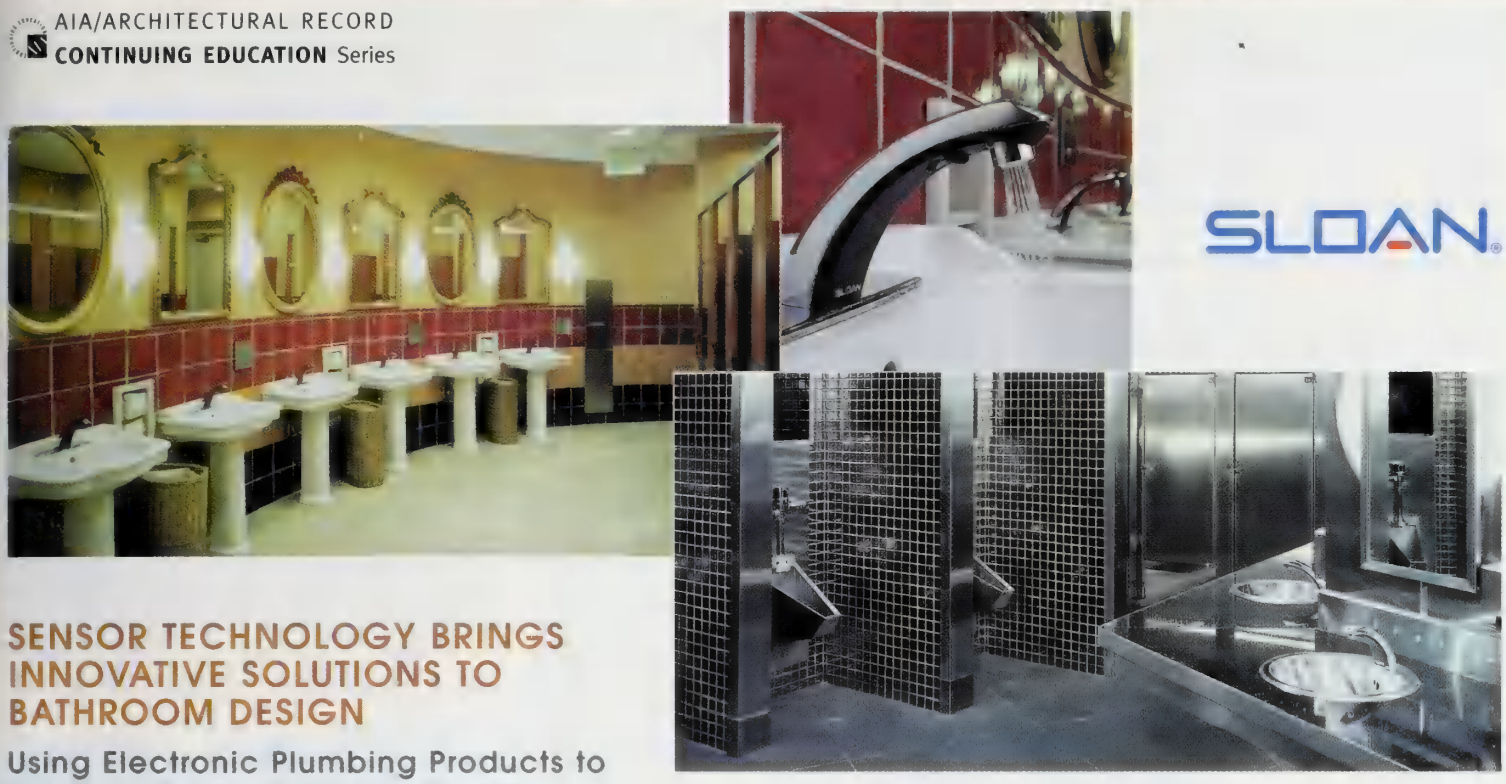
Learn more about why entertainment centers rely on the performance of Sloan. Call **1-800-745-0800** or circle the number below for a copy of our full-line catalog/CD-ROM.



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CIRCLE 104 ON INQUIRY CARD



SENSOR TECHNOLOGY BRINGS INNOVATIVE SOLUTIONS TO BATHROOM DESIGN

Using Electronic Plumbing Products to Enhance Public Restroom Facilities

by: Peter Jahrling – Director of Design Engineering – Sloan Valve Company
John Lauer - Director of Technical Support Services – Sloan Valve Company

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **SENSOR TECHNOLOGY BRINGS INNOVATIVE SOLUTIONS TO BATHROOM DESIGN: Using Electronic Plumbing Products to Enhance Public Restroom Facilities.** To earn one AIA/CES Learning Unit including one hour of health safety credit, answer the questions on page 185, check the answers on page 242, and follow the reporting instructions on page 244 or, use the Continuing Education self report form located at www.architecturalrecord.com.

LEARNING OBJECTIVES:

- Explain how sensors help meet recent federal regulations and laws.
- Identify types of plumbing sensors and how they are operated.
- Describe why sensors are now commonly used in public restrooms.

Visit the restroom in almost any airport and you will find that the faucets, toilets and urinals are being operated and controlled by automatic sensors. "Hands Free" faucets and flushometer valves are also now common sights in a wide variety of public facilities including office buildings, restaurants, medical facilities and schools. Once thought of as fairly unique, sensor operated plumbing products are now being considered standard products for use in almost all types of commercial rest rooms.

Public facilities require restroom accommodations that are unique to that facility's use and traffic patterns. The plumbing fixtures and fittings that are selected for use in these public facilities must be designed and built to accommodate and withstand the specific needs of that commercial restroom environment. The commercial restroom is a harsher environment than that experienced in a residential setting. The variety of people, the volume of traffic, and the variation of individual "bathroom habits" encountered dictate that the products chosen must cover a broad spectrum of diverse activities.

A restroom in a commercial facility is used for a variety of purposes. This includes the obvious 'biological' activities for which a restroom is designed, as well as unexpected activities, not remotely associated with the restroom's intent. Additionally, the characteristics and habits of the restroom user have changed over the last few years. This has resulted in new attitudes, expectations and concerns by society regarding restroom design (In an interesting book, "Are You Normal", published by St. Martins Paperbacks, the author, Bernice Kanner, dedicates a chapter to restroom habits). The general public has become keenly aware of transmittable bacteria and viruses by hand contact as evidenced by the rapid education through the media of communicable pathogens. This awareness has manifested itself in users expecting public facilities to have "hand's free" plumbing fixtures.

The regulatory climate has changed as well in the Unites States. The Federal Energy Policy Act of 1992 mandated that all commercial plumbing fixtures comply with maximum water use requirements. Water closets must now operate on only 1.6 gallons of water per flush (gpf). Urinals cannot exceed 1.0 gallon. And faucets used in public commercial installations must flow at a maximum rate of .5 gallon per minute (gpm) or be designed to meter no more then .25 gallon of water during a single cycle. A standard lavatory faucet cannot exceed 2.2 gallons per minute (gpm). This legislation recognized that the precious resource of water is not inexhaustible and that plumbing fixtures can be designed to operate on less water and still effectively comply with industry standards.

The Americans with Disabilities Act (ADA), which went into effect in 1992, is another Federal law that has tremendously affected commercial restroom and plumbing product design. ADA guidelines were developed to ensure that public facilities were accessible and compliant to handicap individuals and users with a wide range of disabilities.

All these interactions of public attitudes and governmental regulations, combined with the building owners' desire to reduce operating costs have brought to the forefront the use of sensor operated plumbing products within the commercial restroom.

Sensor activation is quickly rendering the use of handles, levers, push buttons and kneepads obsolete in a wide variety of products that are commonly found in a public or institutional restroom. Sensors have been integrated into a wide variety of restroom products. In addition to meeting mandated water use and accessibility regulations, sensor operated plumbing products improve the public restroom environment, both functionally and aesthetically. Sensor operated bathroom products help eliminate the notion of the public restroom as a "negative building space".

IMPROVED RESTROOM HYGIENE



There are a number of basic reasons for using electronic plumbing products in public facilities. These include improved restroom hygiene.

The most important reason for using sensor-operated faucets and flushometer valves is to improve restroom hygiene. By the very nature of what a restroom is designed to do, the fixtures and fittings in a public restroom must come in contact with the bodily functions of a wide variety of human beings. Cleanliness is important not just for the aesthetic value of the facility, but also from the health and safety standpoint. The use of sensor operated plumbing products will keep the restroom cleaner. "Hands Free" products also help prevent the transmission of disease from one person to another.

When a person touches the handle on a faucet or a flush valve, residue on that person's hand or fingers may be physically transmitted to the handle of the product. This residue can than be transferred to the next person touching the handle. Studies have identified that bacteria can be spread from one user to another from a faucet handle or knob. This is called "cross contamination". The use of "Hands Free" faucets and flush valves eliminates the need for physical contact between the user and the plumbing device. This in turn helps to eliminate the possible transmission of a wide variety of pathogens, including hepatitis, salmonella and a wide host of other communicable diseases. Since restroom users are aware that multiple people have been using the facilities, a restroom that incorporates hand's free plumbing devices is also perceived a lot less risky to use. This projects an overall perception to the user that the restroom is "hygienic".

One of the greatest hygiene concerns in a public restroom has to do with odor. In many public restrooms, people do not flush the toilets or urinals. Knowing the above, they don't want to touch the handles on the fittings. When a urinal goes un-flushed, problems are experienced with odor in the restroom.

Sensor flushing devices are designed to deliver a single flush after each use. This eliminates the problem of standing urine and waste in the plumbing fixture. Rinsing and keeping the water fresh in the fixture is a better alternative than the use of deodorizers and other methods of "covering up" the odor. This is particularly important in a public restroom, as many people are extremely sensitive to perfumes and other fragrances that are common in deodorizers. Sensor plumbing products address this odor problem by eliminating the odor causing waste.

REDUCED MAINTENANCE AND HOUSEKEEPING

The use of sensor plumbing products can also reduce the level of housekeeping needed in the restroom. Because sensor faucets have no handles or knobs to grab, soapy water that can drip from the hands will not be left behind as puddles on the sink deck. Urinals and toilets stay cleaner as they are evacuated thoroughly after each use. Since there are no mechanical levers on sensor operated plumbing products, the user has no reason to touch the product, thus reducing the need to wipe down and clean the product.

Another common housekeeping problem in a public restroom is created when paper towels are left on or in the sink. This may be caused by people who will use a paper towel to shut the faucet off. Many people are aware of the cross-contamination that can occur after they wash their hands if they touch the handle to shut off the faucet. To address this, they will actually use a paper towel as a barrier between their hand and the plumbing device. Quite often, that paper towel is left in the sink where it can clog the drain and cause further problems. Surveys of facilities that have retrofitted to sensor operated plumbing products have identified that the use of these products have made the facilities easier to keep clean.

"Hands Free" operation will also reduce the physical impact on a flush valve product. Because people do not want to touch the handle on a flushometer valve, there is a tendency to use their foot to trip the valve. When a flush valve is kicked, it increases the wear and tear on the product. This will eventually lead to increased product maintenance requirements. Since sensor operated plumbing products do not require touching, there is less wear and tear on the product.

WATER CONSERVATION

Water conservation is a benefit that can be tied to the use of sensor-operated faucets. With a sensor-operated faucet, the water is only running as long as the user keeps his hands below the spout. Once the hands are removed, the water flow shuts off. In high frequency hand washing applications as performed by healthcare and food service workers, water savings can be tremendous. Since the water is not running while the person is scrubbing their hands, reaching for a towel or soap or looking for the comb in their pocket or purse, water savings of 60% to 80% can be achieved. Also to be included in the savings is the energy that will be required in heating the water and in treating the wastewater. The automatic shut off of an electronic faucet also eliminates water run on when the user forgets to turn the water off and the faucet runs on for an extended period of time.

Sensor operated flushing devices can also ensure consistent water use. Incorporating a sensor with a flush valve prevents the user from flushing the valve multiple times. Sensor flushometers are also made to meet the strict water use requirements mandated by the Energy Policy Act. However, it is important to note that the most important reason for using a sensor flushometer is to ensure rest room hygiene. These products are often used to address the problem of someone who has not flushed the valve, thus leaving behind a soiled fixture. If a valve goes unflushed, water is not used. However, there will be odor and hygiene problems. A sensor flush valve is designed to guarantee one flush per use. As such, water conservation benefits may not be extreme in using sensor operated flush valves. In this case, because we are disposing of human waste, hygiene is the most important factor as opposed to water conservation.

THE ADA AND HANDICAPPED ACCESSIBILITY REQUIREMENTS

One of the most significant reasons why architects and engineers are incorporating sensor products into their bathroom designs are to meet the requirements of the Americans with Disabilities Act (ADA) and other handicapped accessibility building code regulations. The ADA and other handicap standards typically dictate the amount of force required to activate a faucet, valve or other appliance in the restroom and have strict definitions for the size, positioning and design of plumbing products and their activators. The use of electronic plumbing products, which is specifically identified within the ADA Guidelines, easily allows the products to meet the force and positioning requirements.

Not only do the sensor faucets and flush valves meet the requirements for the handicapped user, these products also meet the needs and requirements of the non-handicapped user. As such, a single product meets the needs of the full user population. The use of sensor products, particularly in a retrofit installation is often the most cost effective way of bringing a restroom in line to meet the ADA requirements.

FACILITY IMAGE

All too often restrooms are considered backwaters when it comes to building design. Sensor plumbing products help put an end to this notion. The use of sensor products in a facility's restrooms helps convey a message to the public.

That message is that the building management is doing all that they can to improve the restroom experience for the user. It shows that the building is concerned about cleanliness, hygiene and accessibility.

Sensor products also convey technology. They identify that the facility is using the latest innovations to improve the bathroom experience. A wide variety of sensor valves and faucets are available to compliment almost every restroom design. Products are designed for both their functional and for aesthetic qualities, each of which is an important consideration when integrating electronic products into the facility.



THE HISTORY AND EVOLUTION OF SENSOR OPERATED PLUMBING PRODUCTS

Sensor operated plumbing products have been in existence over 25 years. Prior to that, the use of electronic timing mechanisms had been prevalent for flushing banks of urinals. These products were used in installations such as stadiums and schools that saw considerable usage. Initial application of this technology included motor operated flushometers that would evacuate multiple urinals through the use of a clock timer or a door switch that activated upon a user's exit. While these devices keep the fixtures clean, they often resulted in excessive water usage as they flushed whether the urinals were used or not.

Enhancements to these crude electronic devices eventually led to the design of individual fixture activation through the technology of sensors. Rather than evacuating the fixtures in an entire washroom through a timing mechanism, a sensor could now detect when a user was at each individual toilet or urinal. This resulted in substantial water savings, while guaranteeing that the fixture was cleansed.

With the advent of individual fixture activation, sensor technology migrated to other restroom products, including faucets and hand dryers. More recently this technology has also been incorporated into soap dispensers, towel dispensers, chemical dispensers, and fragrance dispensers. Considerable use of sensor operated plumbing products has occurred not only in North America but also in Europe and Asia.

The majority of products available on the market today operate using active infrared sensing devices. The technology used in these plumbing products is very similar to the technology used in other infrared devices, including the hand held remote control that is used with a television or a VCR. While other sensing devices can be found in the market, the use of active infrared sensors is most prevalent.

An active infrared sensor emits a concentrated beam of infrared light from the sensing device. This light is directed away from the product. When this beam of light makes contact with a user's body or hands, the light is reflected back to the sensor. A detector in the sensor picks up this reflected signal. Once the sensor sees this reflected infrared light, the internal circuitry then directs the sensor to function under pre-programmed guidelines depending on the type of product the sensor is being used with. This means the sensor will act as a switch, turning on immediately as in the case of a faucet application, or it may go into a hold and trigger sequence, as is the case for a water closet or urinal application.

While the majority of sensor products in the market today utilize active infrared sensors, other technologies are available with varying positive attributes promoted by their manufacturers. Other devices include passive infrared detection that detects changes in body heat, capacitive activated devices that can sense touch or presence, and RF or radio frequency activated devices. Each of these methods of activating plumbing devices has unique operating characteristics. However, it is not always safe to specify a product by the technology. Consideration has to be given to how the manufacturer has incorporated that technology into their products and how that development was achieved.

> Sensor design continues to evolve. Electronic plumbing products are being designed to be an integral component of smart building design.

The first sensor-operated products typically operated on a low voltage power supply (usually 12 or 24 volts) and were connected to a transformer that was then connected to the building's electrical supply. These products are typically referred to as "hard wire". Integration of these products into a facility often required the work of both an electrician and a plumber. While "hard wire" products are still popular, a wide variety of products are now available with battery operation. The use of battery operation has allowed greater flexibility with reduced initial labor requirements. Battery operated sensor valves and faucets allow for easier and more cost effective installation. This is particularly important when retrofitting an existing building.

The advent of battery valves and faucets does not eliminate the need or use of the "hard wire" products. Battery products often have greater maintenance needs (the batteries will have to be changed at some point) and "hard wire" products are often the better choice when designing facilities that have high impact usage. It is important for the architect to consider the long-term use of the facility when making the product choice. In today's product selection an architect has a world of choice in a variety of electronic activated plumbing devices as well as a variety of operating characteristics.

Like all technology, the circuitry used for sensor plumbing products has experienced considerable evolution over the last 25 years. Sensing devices have been improved for their ability to better distinguish between light and dark colors and sensors are also incorporating other features to help eliminate problems that can be found with reflective light. These problems include the high intensity reflections that can occur off of mirrors and stainless steel.

Sensor design is continuing to evolve. Current products are often designed to be communicating. Faucets, flush valves and hand dryers and other devices can be linked together with information being collected by a PC or other electronic data device. Electronic plumbing products are being designed to be an integral component of a smart building design.

CHOOSING THE APPROPRIATE SENSOR PRODUCT FOR A FACILITY

With all the variety of products now available for the architect to specify it is important to understand that specific devices are not necessarily well suited for all projects. In many high traffic areas such as airports, bus stations, and sports stadiums, quick on and off operation and rapid cycling are a must as the owners of those facilities demand that users be serviced quickly and exited into the more important aspects of their facility. Water closet applications are particularly important because of the variety of activities that go on within a stall (activities that often go beyond their designed intent). Sensor water closet valves should feature an override button that allows the user a "Courtesy Flush" to clear any tissue or other debris that has been added to the bowl before or after is its primary use. Timing delays should be incorporated into the sensor circuitry to help prevent false flushing that can occur as the user moves within the water closet compartment.

"Point of Use" or "Body Bounce"

When considering automatic faucets for a facility, it must be determined whether "point of use" faucets should be used or if "body bounce" faucets should be incorporated. In a "point of use" automatic faucet the sensing area is immediately within the range of the user's hands under the faucet. In these instances, the faucet will only activate water when the user's hands are close to the water faucet. This saves water as flow is only dispensed when the user's hands are underneath the exit point of the spout. In a "body bounce" application a sensor turns the water on when a user is standing in front of the sink basin. This keeps the water flowing as long as the user is standing in front of that individual fixture or until the sensor reaches a preprogrammed time out setting. In cases where there are mirrors above the sinks inviting users to stay for extended periods at the fixture, a body bounce application wastes water.

Maximum Faucet Run Time

It should be noted that all automatic faucets specified on a project should have a maximum run time. A maximum run time, or time out setting, ensures that the faucet will still shut off even if the sensor is blocked. Vandals will often attempt to damage a facility by blocking the sensor and sink drain in the attempt to cause the faucet to remain on and ultimately overflow the basin. A maximum run time assures building owners that faucets will not continuously run, eliminating the chance of an over flowing sink basin. Products are available with both preset and adjustable time out settings.

Durability and Functionality

In high impact environments, which can include shopping mall facilities, school restrooms and high usage public access sites, the automatic plumbing fixtures must be strong enough to withstand abuse beyond the normal operation of the plumbing device. In these applications, concealed flushometers and more substantial low profile rugged automatic faucets are often recommended.



In the case of multifunction restrooms that may be in a hospital or process industry environment, "gooseneck" style faucets may be necessary in order for the user to not only wash their hands but also their forearms. The appropriate "gooseneck" product must reckon with the fact that the target area is a much larger area and the sensing elements need to be of a broader design to accommodate the rapidly moving targets of the hands and fore arms.

Adaptable to Diverse Habits

In all of the above applications, the sensor-activated product must be sturdy enough to deal with the diverse habits of a broad spectrum of the population. Pedestal type sensor operated faucets are subject to unintentional abuse by users unfamiliar with automatic faucets. These users try to activate the product by physically moving it from side to side. This is not an abnormal tendency as the innate habits of the general public have been trained to rotate some sort of mechanical device in order for the faucet to activate. Faucets need to be secure on the sink and should incorporate an anti-rotation device or positive stop to resist the rotation of the faucet. One automatic faucet on the market actually features a sensor installed separate from the faucet that looks like a faucet handle. This intentional deception causes the inexperienced user to grab for the round knob thinking that it is a manual handle. As the user reaches towards the device, the sensor picks up the hand and begins the flow of water from the faucet. This simply teaches the user how the faucet works.

When specifying electronic plumbing devices, a decision must be made as to whether or not to use a "hard wire" or battery powered product. This is not a simple task and must be evaluated by several offsetting considerations. In a large facility that uses multiple fixtures (such as a stadium), the correct plumbing device is typically the "hard wire" product. The additional initial cost of pulling the wire and having an electrician wire to the individual fixtures are out weighed by the inevitable maintenance of having someone going around and changing the batteries on all of the fixtures. While "hard wire" products are preferred in high impact facilities, battery operated products are ideal in low impact settings such as office buildings and restaurants. However at some point the batteries will require changing. Whether this is done only after the batteries "run dry" or whether a regular maintenance program is established to ensure that the batteries are changed regularly, the building operator must be aware of these requirements. While the architect need not be involved in planning these activities, it is certainly incumbent upon the architect to point them out to the customer who is in a better position to know what is important in his facility.

Impact of Other Electronic Devices

When specifying electronic plumbing devices, an architect must be sensitive to the many modern electronic devices that are now incorporated within a commercial restroom design. High intensity lights and ballasts can cause interference with some electronic plumbing devices. Only those manufacturers that use blocking electronic circuits should be considered when specifying electronic plumbing devices. Experience plays a very large factor when selecting electronic plumbing devices. Service both before the sale and after the sale are critical to the operation of the specified product.

Fit Facility's Traffic Profile

The ruggedness of the electronic plumbing product must fit the facility's traffic profile. Pedestal type faucets without anti-rotation devices are doomed in a harsh restroom environment. Equally inappropriate are obtrusive electronic plumbing devices in a pleasingly set architectural design where vandalism is not a prime consideration. When determining which product to use, it is important to consider both form and function. A delicate Euro-design faucet spout may be appropriate for the restroom in a 5 star restaurant, but would typically not be appropriate in an amusement park, just as a gooseneck faucet designed for a hospital scrub sink would not be appropriate in the 5 star restaurant.

INSTALLATION AND DESIGN REQUIREMENTS WHEN DESIGNING A RESTROOM WITH ELECTRONIC PLUMBING PRODUCTS

Sensor plumbing products often require greater care and expertise in their installation and initial adjustment. Most manufacturers identify that the majority of problems that occur with sensor plumbing products are the result of poor installation. As infrared light and other sensing signals are invisible to the human eye, the installer must ensure that the product is installed per all manufacturer requirements and recommendations. With many of these products it is not always as easy as "slapping it in" and walking away.

That said, it must also be noted that the installation, adjustment and initial operation of these products is not difficult. It is just different than a manually operated product. The installer must be fully aware of all installation requirements and must be held accountable for the quality of his work.

When specifying 'hard wire' products, the architect and engineer must be clear which trades are involved in the installation of the product. When wire must be run, and electrical boxes or conduit installed, it must be clearly identified which trade will be responsible for that phase of the installation. Most manufacturers supply specification guides, rough-in templates and concise installation instructions for their products. It must be made clear to the installer that these instructions must be fully reviewed and understood before the installation of the product is begun. Familiarity with the product and installation procedures will ensure that the product performs to the satisfaction of the user and building owner.

Because every bathroom design may vary slightly, fine-tuning or adjustment of the sensing range is often required and expected after the faucet is installed. These procedures can typically be made quickly and easily during the installation of the product. Many manufacturers often design their electronics to be housed separate from the actual plumbing fitting. This allows for easy access to the circuitry for making an adjustment without having to disturb or remove the faucet from the sink or the valve from the fixture. Recent advances in some manufacturer's products have incorporated automatic self-adjustment of the sensing device. This automatic calibration electronically adapts the sensing range of the sensor for the varying light conditions that may exist in a particular restroom design. These innovations save installation time and provide continued effective operation of the plumbing device through multiple building remodels during the life of the building.

Like any plumbing product, be it manually operated of sensor operated, it is important to be certain that the fitting is properly matched to the fixture. In the case of faucets, it is important to make sure that the hole punchings in the lavatory match the size and location requirements of the spout design being used. Sinks and faucets are available for both single hole and center set spread applications. Electronic flushometers must also be matched to the proper urinal and water closet fixture to ensure that the valve and fixture are matched for water use and connection compatibility.

When properly specified and installed, sensor operated plumbing products will perform to the expectations all those concerned with the commercial restroom. This includes not just the user but also the building owner and maintenance and housekeeping staff.

For many architects, engineers and building owners, the use of sensor operated plumbing products is no longer an option – they are a "given". Electronic flush valves, faucets and other restroom products have addressed specific building needs and are beneficial to both the restroom owner and the restroom user. As an architect it is extremely important to consider the needs of the facility when considering the choice of product. The proper selection and use of these products will enhance your building design and increase the overall satisfaction of your clients.

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LEARNING OBJECTIVES:

- Explain how sensors help meet recent federal regulations and laws.
- Identify types of plumbing sensors and how they are operated.
- Describe why sensors are now commonly used in public restrooms.

INSTRUCTIONS:

Refer to the learning objectives above. Complete the questions below. Then turn to page 242 and check your answers. Fill out the self report form on page 244 and submit it or use the Continuing Education self report form on *Record's* web site - www.architecturalrecord.com - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:

1. How does the use of sensors make a restroom more hygenic?

2. How do sensors reduce odors in restrooms?

3. How do plumbing sensors help conserve water?

4. When is it appropriate to specify battery operated sensors as opposed to hard wired sensors?

5. What are the causes of most problems with sensor plumbing products?

6. How have ADA guidelines made sensor plumbing a popular choice?

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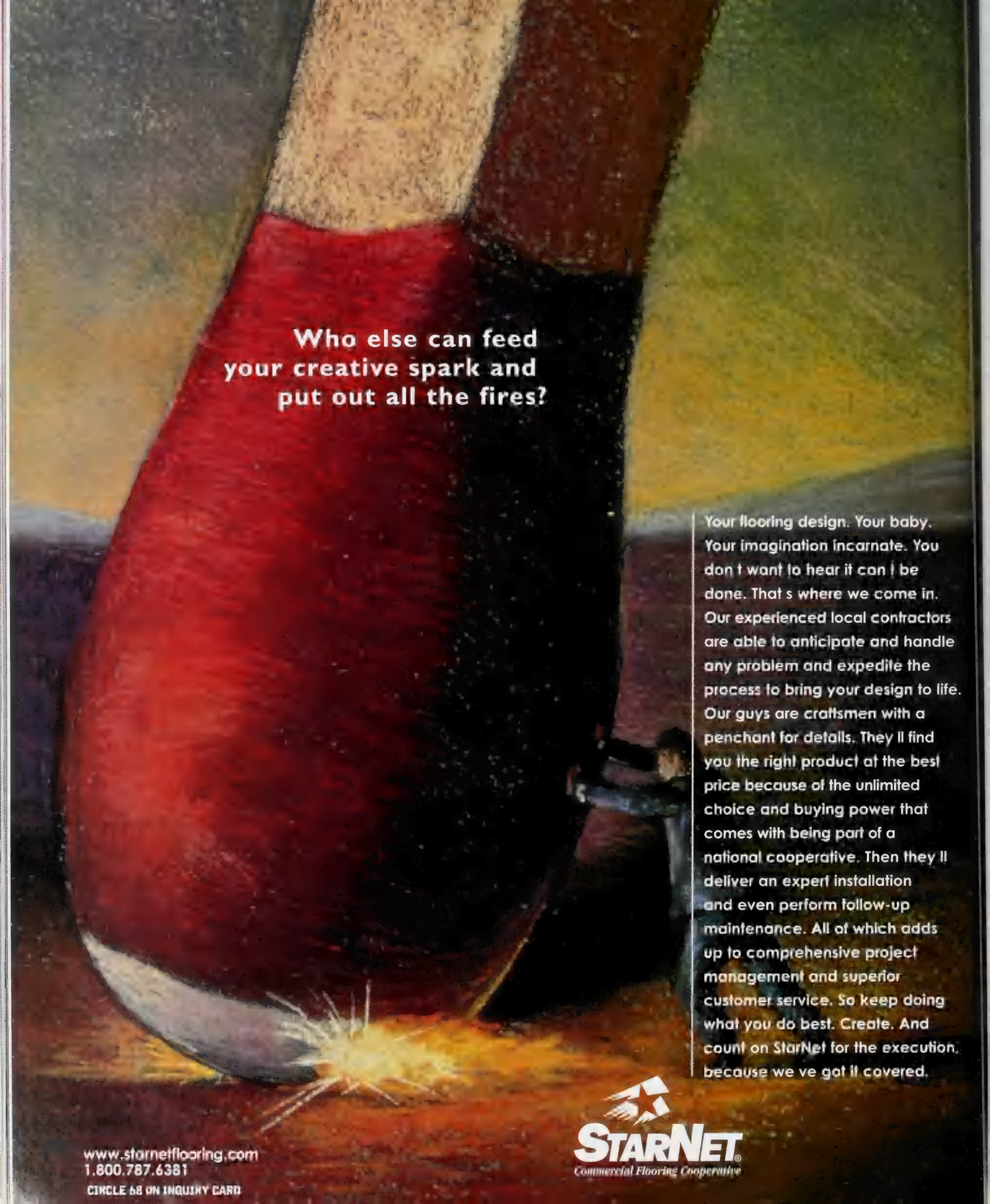
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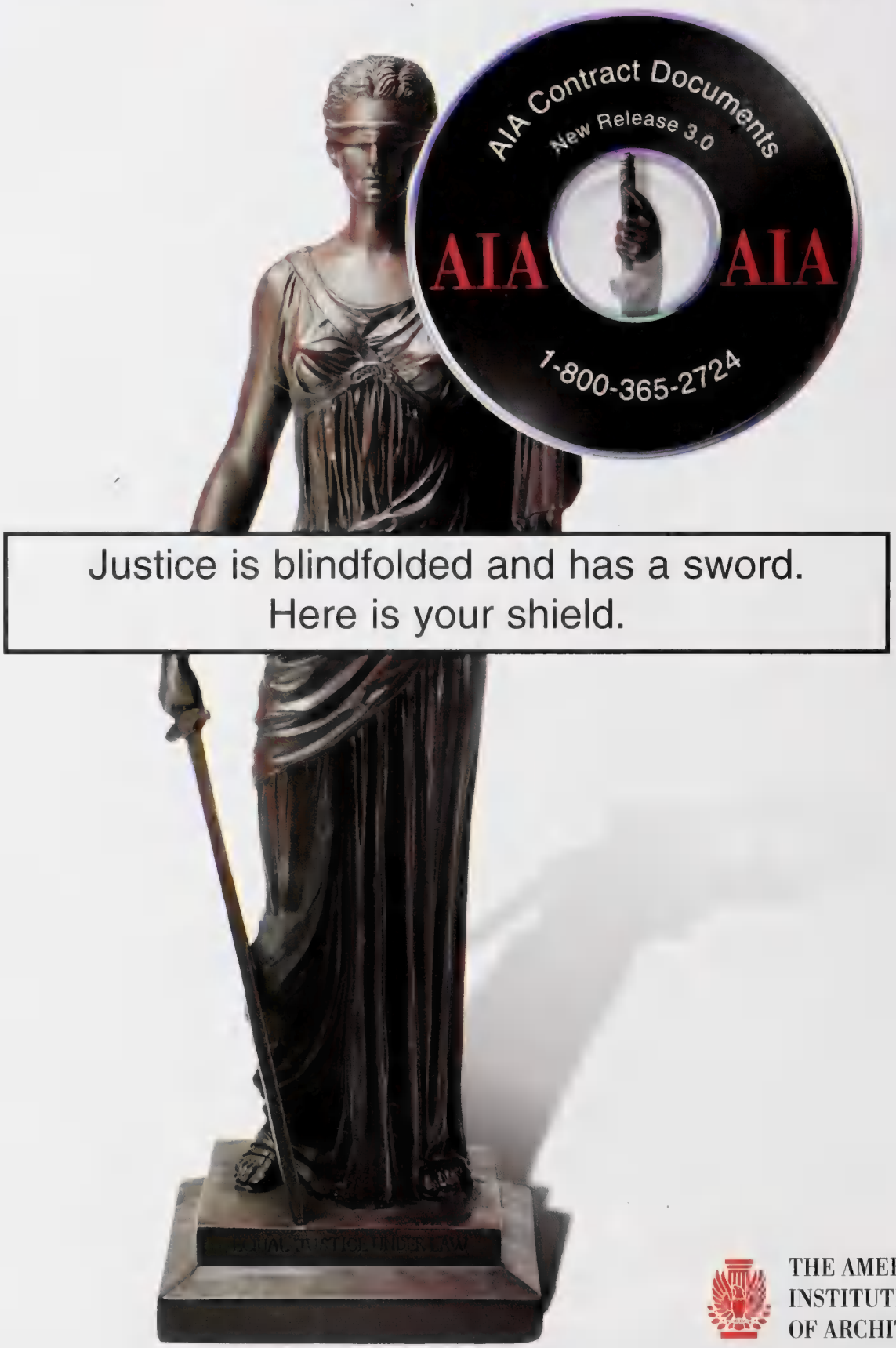
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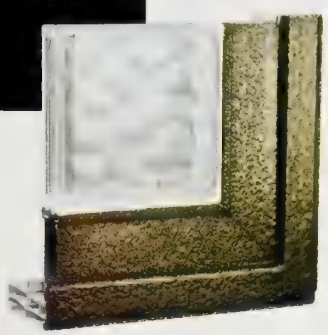
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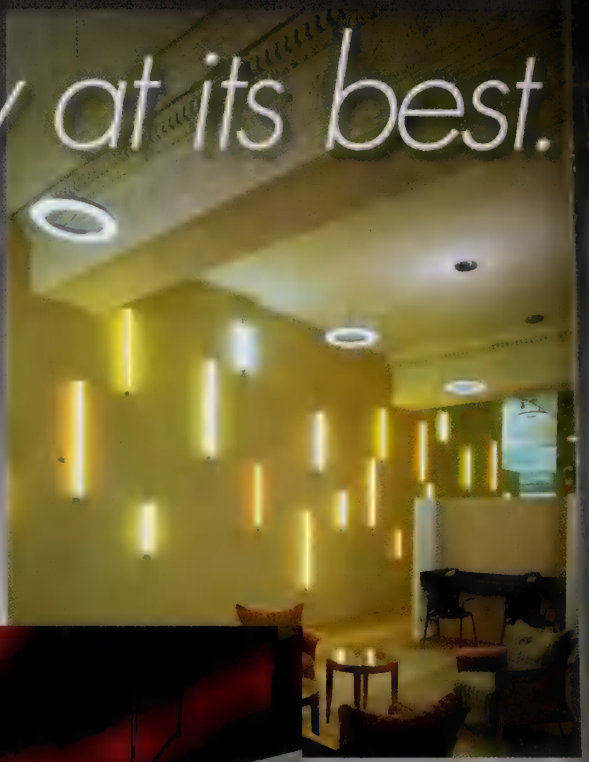
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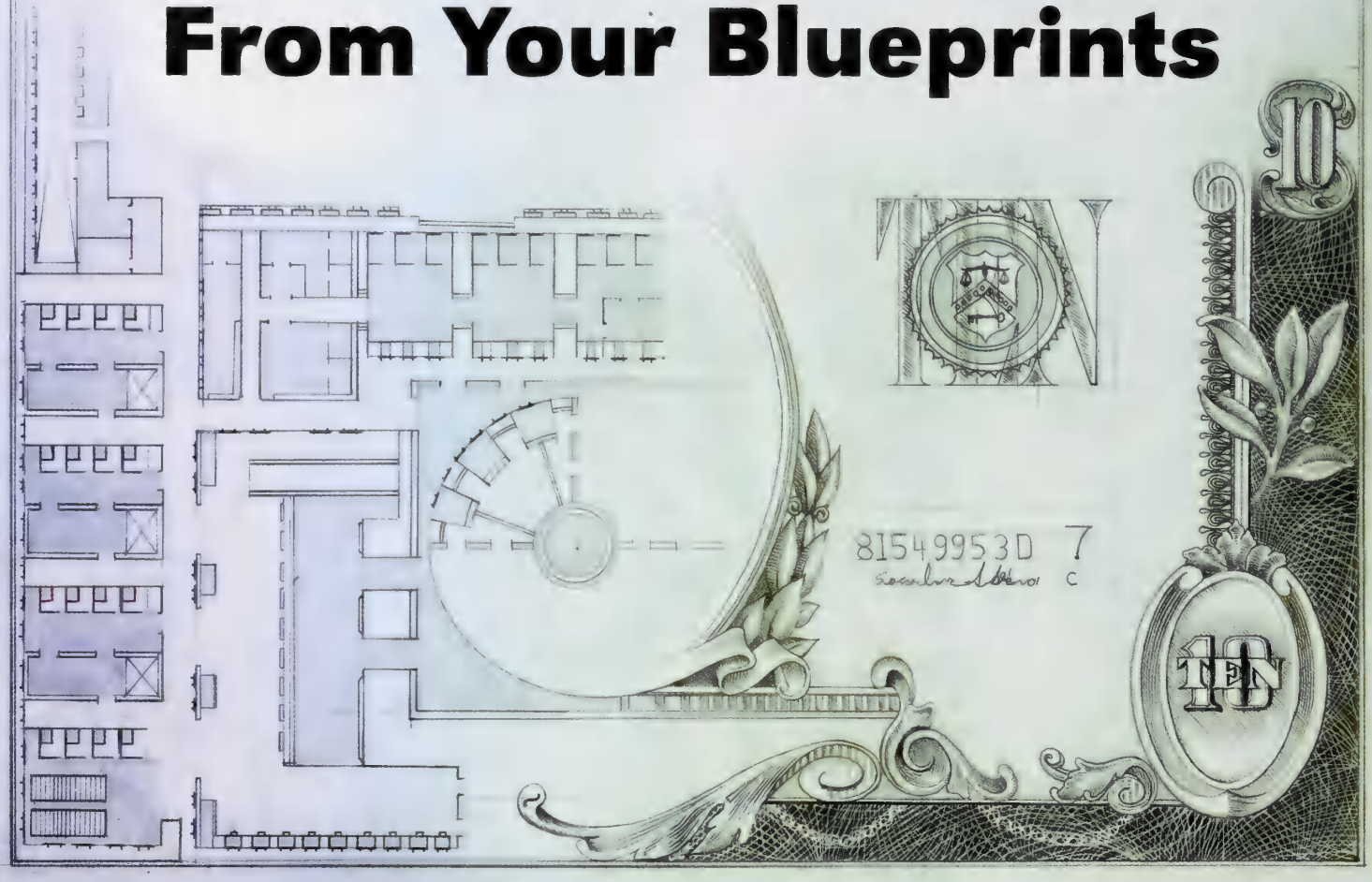
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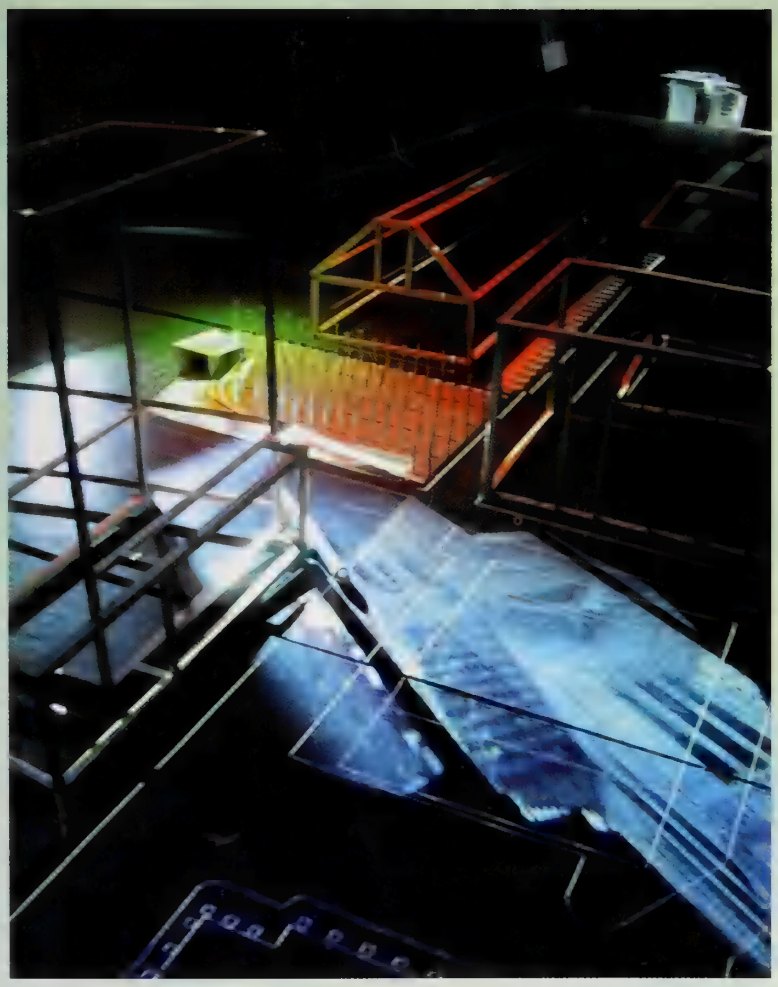
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CIRCLE 71 ON INQUIRY CARD

THE DIGITAL PRACTICE

This month, we plow new territory and go virtual



Building models shown on the Luminous Table, a design tool developed by MIT's Media Lab that wirelessly tracks the positions and orientations of objects on a tabletop display. Objects are "seen" by an overhead camera; as they're moved, the camera responds by projecting the virtual sunlight, shadows, and wind patterns that would result in reality. The table is used by MIT students to assess design and planning options.

A former colleague once admonished me and a group of fellow engineers for being too risk-averse. He told us, shaking his finger in a professorial way, "Sometimes if it ain't broke, you gotta break it." This advice—from a silver-haired avuncular man whose already boundless energy seemed even more so after he underwent bypass surgery—has stuck with me, and this month's feature story reflects this breaking-the-mold spirit. Instead of focusing on digital products and tools, it's a thought piece—an essay on how digital tools shape architectural education. As students are either returning to school or just starting their first semesters, it seems appropriate to reflect on what the continuing digitization of the profession means for those just learning the craft, as well as those who teach it.

On another subject: Although the digital practice section has appeared four times a year (March, June, September, and December) for a couple of years now, it hasn't been truly digital in form. Jerry Laiserin's monthly Digital Architect column has been posted to our Web site since February 1999; occasionally, product reviews have appeared as well. I'm happy to say that we're increasing the amount of enhanced and expanded material on our Web site. You can find it at **www.architecturalrecord.com/digital**. Follow this link to news stories, briefs, features, product reviews, vendor lists, and of course, Digital Architect. *Deborah Snoonian, P.E.*

196 **Digital Briefs**
By Deborah Snoonian, P.E.

197 **Digital Architect: Architectural Computing Without Wires**
By Jerry Laiserin, FAIA

200 **Digital Pedagogy: An Essay**
By Dana Cuff

211 **Digital Product Reviews**
By Jerry Laiserin, FAIA



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CIRCLE 73 ON INQUIRY CARD

Digital Architect

Architectural Computing, Without Wires

By Jerry Laiserin, FAIA

In the world of technology, yesterday's science-fiction fantasy often becomes today's reality and tomorrow's mainstream tool. Fans of *Star Trek* fondly remember the fictitious "communicator"—a flip-top, handheld device not much bigger than a deck of playing cards, with seemingly limitless computing power, plus the ability to link over vast distances to other communicators and to big computers on the mother ship. Now, when Bob Schulz, AIA, chief architect in the chancellor's office at California State University, flips open his Kyocera QCP-6035 SmartPhone, one almost expects him to say "Beam me up, Scotty," and be instantly teleported to one of the 27 campuses he oversees.

In the same manner that desktop computers and Internet communications have transformed architectural offices, devices like Schulz's promise to transform job sites, clients' offices, manufacturers' showrooms and any other location where architects need to analyze, design, document or present their work. Forward-looking practitioners need to understand their wireless communication choices, learn how other architects are using these tools now, and consider the effects of this technology as it is more widely adopted.

IN THE NEAR FUTURE, WIRELESS DEVICES WILL INCORPORATE BOTH COMPUTING AND COMMUNICATION FUNCTIONS.

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

www For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **www.architecturalrecord.com**

What's available?

Wireless technology can be divided into a few broad categories. Two-way pagers, such as Motorola's Timeport or Research in Motion's BlackBerry, provide always-on wireless Internet access to e-mail, limited Web browsing and "instant" text messaging. Yet they lack all but the most rudimentary data storage and processing power. This limitation makes them ill-suited to architecture-specific computing tasks like punchlists, field notes or drawing review, although they're still acceptable for general on-the-go business management for people who need to communicate quickly with coworkers or clients.

Handheld PC systems, in contrast, are portable, battery-powered computers that weigh just a few ounces, and run software that mimics and synchronizes with programs and data on desktop or server computers—even advanced software like spreadsheets and CAD. Handheld computers can be further divided between systems employing Microsoft's WindowsCE operating system (OS), such as Casio's Cassiopeia, Compaq's iPaq (reviewed, page 211) and Hewlett-Packard's Jornada, or those employing Palm Computing's Palm OS, such as Palm's own devices (which currently outsell all others), HandEra's 330 model (reviewed, page 211), Handspring's Visor or Sony's Clié.



The convergence of handheld computing devices with wireless communications technology, as in the Handspring Visor with VisorPhone attachment, opens new opportunities for client service and project delivery.

One drawback of handheld PCs is that they typically lack built-in wireless communication capability. However, most currently available devices are equipped with physical connectors, ports, or slots for plugging in add-on devices such as wireless modems. Modems are offered by outfits such as Novatel or Sierra Wireless, and are capable of plucking e-mail or Web pages out of thin air, albeit with the aid of a monthly subscription to a wireless Internet service provider such as GoAmerica or Omnisky. Kyocera's SmartPhone, and a similar device from Samsung, combine the functions of several devices—a Palm OS computer, a built-in wireless modem and a full-featured mobile phone. Not to be outdone, mobile phone vendors Ericsson, Motorola, Nokia and Matsushita have collaborated to incorporate computing functions into their future phones. This will occur via a new OS called Symbian, which is unfortunately incompatible with both Palm and Windows. Microsoft is countering these moves with a phone-based version of Windows—code-named Stinger—which is currently available only outside the U.S. in a prototype model made by Sendo. Ultimately, the question will be whether consumers prefer that their mobile phones become computers, or that their handheld PCs become mobile phones.

Who's using what?

The ways that architects currently mix and match these tools vary widely, depending on the firm in which they practice and on each individual's role within the firm. For example, Mark Ginsburg, AIA, a partner in the seven-person firm Curtis+Ginsburg in New York, uses his Palm Pilot for general business productivity, like many professionals who travel for work. Ginsburg relies on Puma's Intellisync software to synchronize his Palm-based address book, calendar, and to-do list to the Lotus Organizer software he uses to manage those functions on his desktop PC. He also uses CES, Inc.'s

IMAGE COURTESY HANDSPRING, INC.

QuickOffice to link notes and expense reports on his Palm to their counterparts in Microsoft Office Word and Excel.

Other small-firm principals and solo practitioners extend the capability of general productivity applications to manage their practices. Joseph Vance, AIA, owns a five-person firm in New York that does residential work nationwide. He has equipped everyone on his staff with a Palm device and a Targus portable keyboard. "Intricate meeting minutes that used to take an hour or two to transcribe can now be typed while the meeting is in progress, then transferred to an office computer for formatting and e-mailing in a matter of minutes," Vance says. He adds that each Palm/keyboard combination saves over $1,000 compared to the cost of a laptop. He finds that he and his staff have no difficulty linking Palm-generated data to the computers in his "100% Apple Macintosh" office, including syncing to Mac versions of Microsoft Word and Excel, and to Now Up-to-Date & Contact schedules and address books (from Power On Software).



PocketPC devices, such as the Compaq iPaq, which use Microsoft's WindowsCE operating system, are especially well-suited to running CAD programs like Autodesk's OnSite View.

Richard Buday, AIA, president of Archimage in Houston, was an early adopter of handheld PCs. He has owned six different devices over the last 10 years; currently he owns a Handspring Visor Edge. Buday uses Documents-to-Go software to connect Palm OS programs to the desktop-based programs of Microsoft Office. His mobile software toolkit also includes TimeTracker, with which he records the time he spends on each of his projects. He then links this data to the desktop version of Quicken's Quickbooks Pro for processing timesheets into invoices. Buday has developed a job-cost/fee template for his handheld computer, which allows him to propose and revise project fees while away from his office, even during client meetings. He has even downloaded the text of the Americans with Disability Act (ADA) regulations in Texas, and converted them on his desktop PC to Adobe PDF format, which he can view and search via Adobe's Acrobat Reader on his Visor.

Another class of users consists of business development principals who function like sales staff. They need handheld computers to communicate with coworkers, to take work on the road, and to manage extensive contact lists. For some, the always-on e-mail connectivity of a two-way pager may be sufficient, although many prefer more computing power. Paul Seletsky, who recently left a position as technology manager for a 350-person architectural firm to join a high-tech startup company, points out that most handheld PCs support not only add-on modems but also video add-ons that let marketing principals run digital slide shows on any computer monitor or projector—a feat far beyond the powers of a two-way pager. Compaq's iPaq can deliver video presentations via a VoyagerVGA PC Card from Colorgraphics inserted in the iPaq's optional expansion sleeve. Visor users can achieve the same result with Margi Systems' Presenter-to-Go add-on module.

The most demanding users among today's handheld-toting architects are those engaged in construction administration, who divide their time between job sites and their regular workplaces. They have the same needs as other architects and professionals, and also require access to weather reports, digital photos, CAD files for viewing and sketching, punchlists, and so on. At the site of a new $230-million, 400,000-square-foot laboratory for the University of California at San Francisco, Luminita Ruva, AIA, leads the construction administration team for the SmithGroup, executive architect for the project. In her field office, Ruva has a desktop PC equipped with a high-speed Internet connection to her company's intranet. She uses this PC to synchronize her iPaq to data and files used by the 1,000-person firm. This includes copies of AutoCAD drawings she refers to each day, on which she can make notes and sketches in Autodesk's OnSite View (OSV—reviewed, page 212) directly on the iPaq's touch-sensitive screen, or via voice annotation with its built-in dictation recorder. Ruva says she will create the project's punchlist next year by making comments directly on plan drawings in OSV and issuing key-plans and keynotes to locate punchlist issues. For designing or issuing sketches in the field, she is evaluating the use of ArcSecond's PocketCAD (reviewed, page 212) which adds full editing and drawing functions for AutoCAD DWG, DWF and DXF files on handheld devices.

What's next?

The introduction of PCs, along with CAD and other software, eliminated much of the tedium and inefficiency of drawing on paper. But it still left architects tethered to their offices as firmly as Beaux Arts designers were once stuck in their ateliers. Handheld PCs with wireless Internet connections promise to make architectural practice an anywhere, anytime activity. Savvy practitioners will take advantage of this new mobility to engage their clients more closely, and to collaborate more directly with consultants and contractors—imagine meeting in an engineer's office, client's office, or a job site trailer with instant access to every file and drawing needed.

NEW STANDARDS FOR WIRELESS COMMUNICATIONS WILL ALLOW HANDHELD PCS, CELL PHONES, AND OTHER PORTABLE DEVICES TO TALK TO EACH OTHER.

Even within offices, wireless connectivity is gaining ground. A technology standard named 802.11b—also known as WiFi—allows architects with laptops or handheld PCs to move around within an office, gathering in groups and working together spontaneously, while remaining connected to the office's network. WiFi networks can be established on construction sites as well, giving site workers mobile access to project information—and to each other. An even shorter range standard called Bluetooth, which is just coming to market, will create "personal area networks" that create wireless connections among devices such as handheld PCs, mobile phones, keyboards and digital cameras, just by mere proximity, so that they can share and swap information.

As wireless services increase in speed and decline in price, the ability to keep handheld devices connected to office networks and the Internet will become a key advantage for digital architects. To paraphrase *Star Trek's* Captain Kirk, now is the time to boldly go where no architect has gone before. ■

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Digital Pedagogy: An Essay

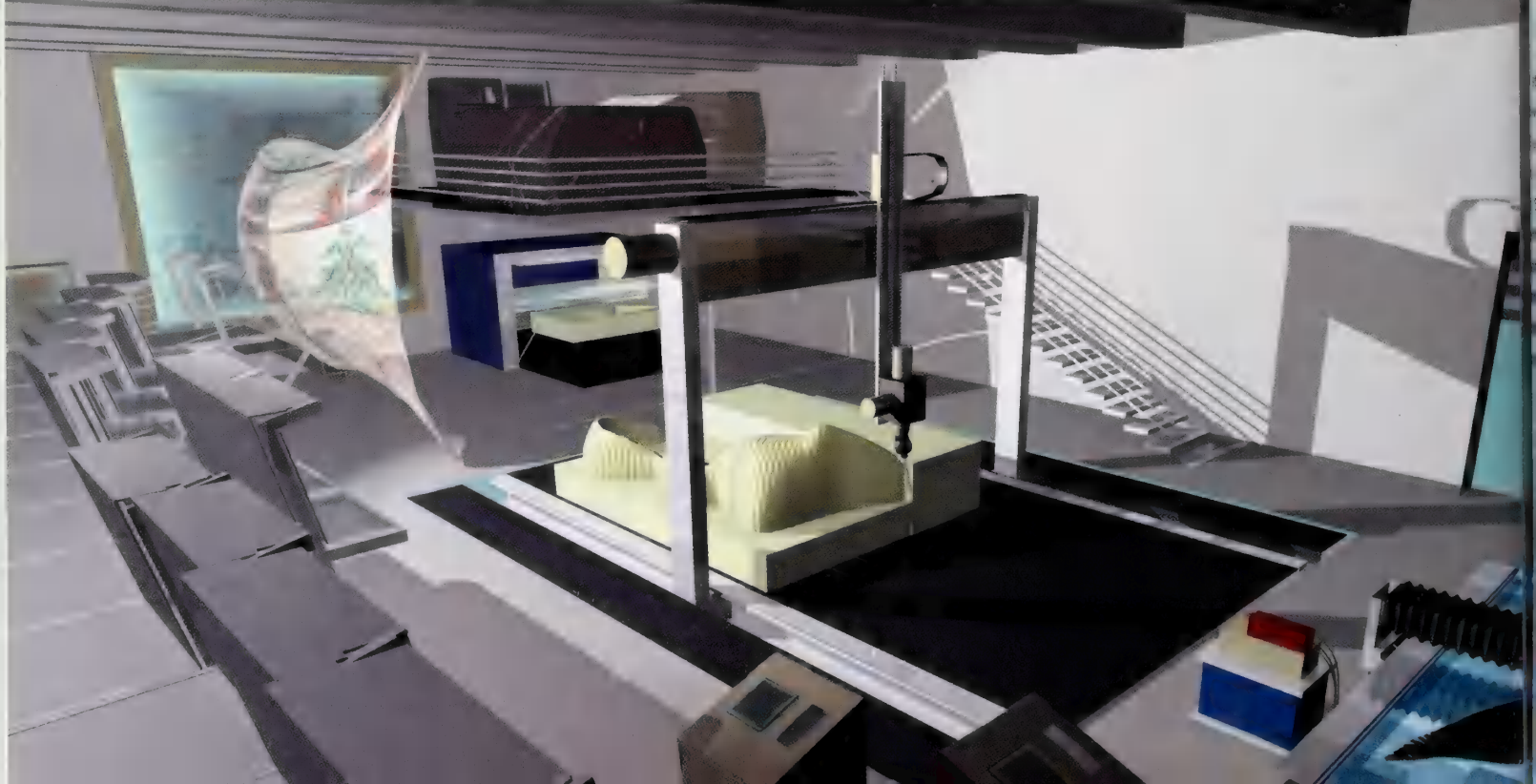
One educator's thoughts on design software's profound effects on design thinking and teaching

There's no question that knowledge of CAD programs and competence with other design software are de facto skills possessed by today's architectural graduates. But how are those skills imparted? And how does design software affect the way students learn about and design buildings?

The ongoing debate between architects who embrace digital design tools and those who wish drawings were still executed by hand has been growing in scope. In this essay, digital design is addressed from within the academy itself. Noted architectural educator Dana Cuff explains both the opportunities and limitations created by the increasing use of 3D CAD and visualization programs in teaching studios, and suggests these tools are vehicles for creating not only new forms of architecture, but also new teaching methods and enhanced design capabilities. She offers an intelligent perspective on a debate which, over time, we hope will evolve into a discourse.

Deborah Snoonian, P.E.

Below, a rendering of a proposed 3D manufacturing lab for UCLA's Department of Architecture and Urban Design. The lab will feature equipment needed to produce complex architectural models designed by students using 3D CAD and visualization software.



By Dana Cuff

In the late 1980s, one of the most important transformations of the contemporary profession was just beginning to surface: computing. During the intervening years, computers have become pervasive in all aspects of architectural education and practice. At the same time, the debate within the profession has shifted from the relevance of drawing in pencil and ink to the relationship between digital media and architecture itself. Although questions about the role of learning to draw in an electronic age are still relevant, it is worth setting aside the issue of the computer-as-tool in order to examine instead the more profound questions of the computer's cognitive implications, and whether there are emerging new modes of thinking about architecture and space. How are computers transforming the way architects learn to design and build?

The more things change, the more things will keep changing

Architecture schools are concentrating resources to develop computing power into a creative medium for young architects, to attract talented students and young faculty. This once meant setting up laboratories, hiring software jockeys, and garnering large grants for computer research. Now, because computing has become a populist skill, computers are breaking out of the lab to take over where parallel rules left off. To some degree, architecture schools are accomplishing what will be necessary and more difficult for computer science and electrical engineering to pull off—the creative re-wiring and unwiring of digital media, so that as computing becomes increasingly ubiquitous, its capabilities transform accordingly. In architecture departments, the assimilation has created more relevant, more seductive, more visual, more task-oriented applications. Eventually, they may even be more architectonic.

Dana Cuff is a professor of architecture and urban design at UCLA. In addition to her extensive writings on issues of architectural practice, she recently published a book on modern urbanism, The Provisional City *(MIT Press, 2000).*

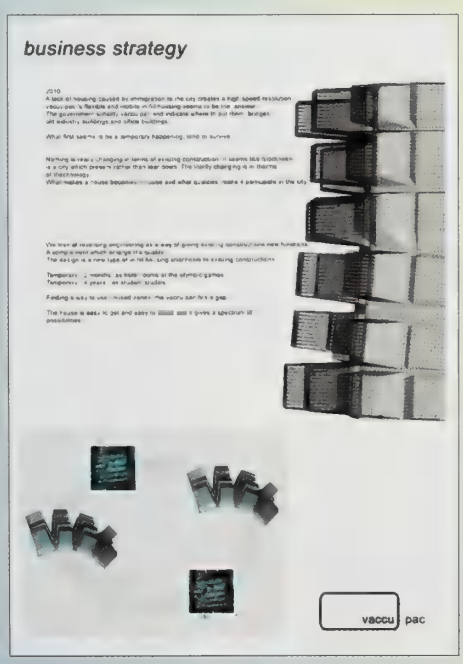
In today's final reviews of projects done by architecture students, the work on the walls is increasingly if not entirely computer-generated. Consider an indigenous ritual among architects: the charrette, now gone digital. Boards documenting analysis and precedent that would have required hours of graphic design, paste-up, and lettering can now be modified with hindsight to include text and images that are more reflective of the design project's end-state. The design project itself can undergo substantial last-minute alterations, so long as the print queue isn't prohibitive. The charrette's alchemy is stronger than ever, though the studio may be distressingly empty. Each

NOW THAT COMPUTING HAS BECOME A POPULIST SKILL, COMPUTERS ARE TAKING OVER DESIGN STUDIOS WHERE PARALLEL RULES LEFT OFF.

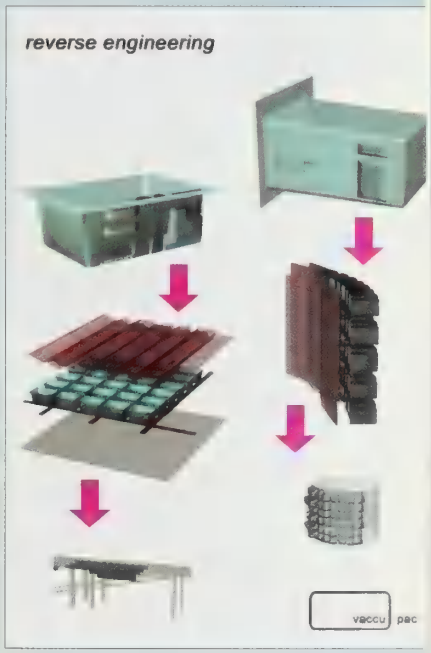
student at home, in studio, or in the lab is locked in an intimate nose-to-screen tango with a beige box. Simultaneously, each student is dependent on a number of tools of the digital age: the network, the large format plotters, the milling machine, and other output peripherals. As a result, printing costs soar, files bomb, servers go down and must be patched, and everything takes longer than estimated. Some students never print their projects at all—their final presentations may be computerized projections, evanescent shows for jurors who can no longer get up to take a closer look. Students asked about a design decision may reply that it was less a decision than a "moment," as if the animation software were temporarily interrupted, rendering the particular frame on view somewhat arbitrarily.

Today's academic digital design is impressive but also paradoxical. The charrette example shows that students are simultaneously more isolated and less independent; are able to design more passively or with

A student project developed using 3D Studio Max software for a design workshop in Stockholm. The project is a housing scheme inspired by the structure and logic of cell phones and other consumer technology.







new inventiveness, both formal and mathematical; and can design more responsively yet with less commitment. Students are exploring alternatives in ways that were never possible before, when each alternative required a prohibitive investment of scarce resources—time, model materials, or ideas. Scarcity—a condition John Locke considered a fundamental governing principle in society—has been replaced by overabundance. Computers allow students to produce minor design variations with a minimal investment of time, so that trivial alterations can be endlessly explored, while qualitatively distinct alternatives require the same pre-digital level of effort. With speed the currency of computation, and time the scarcest resource in school (and practice), the architect's fickle muse—the deadline—has been perverted. While some types of work can indeed be done more quickly, it's also possible for students to make their projects look finished in less time than ever.

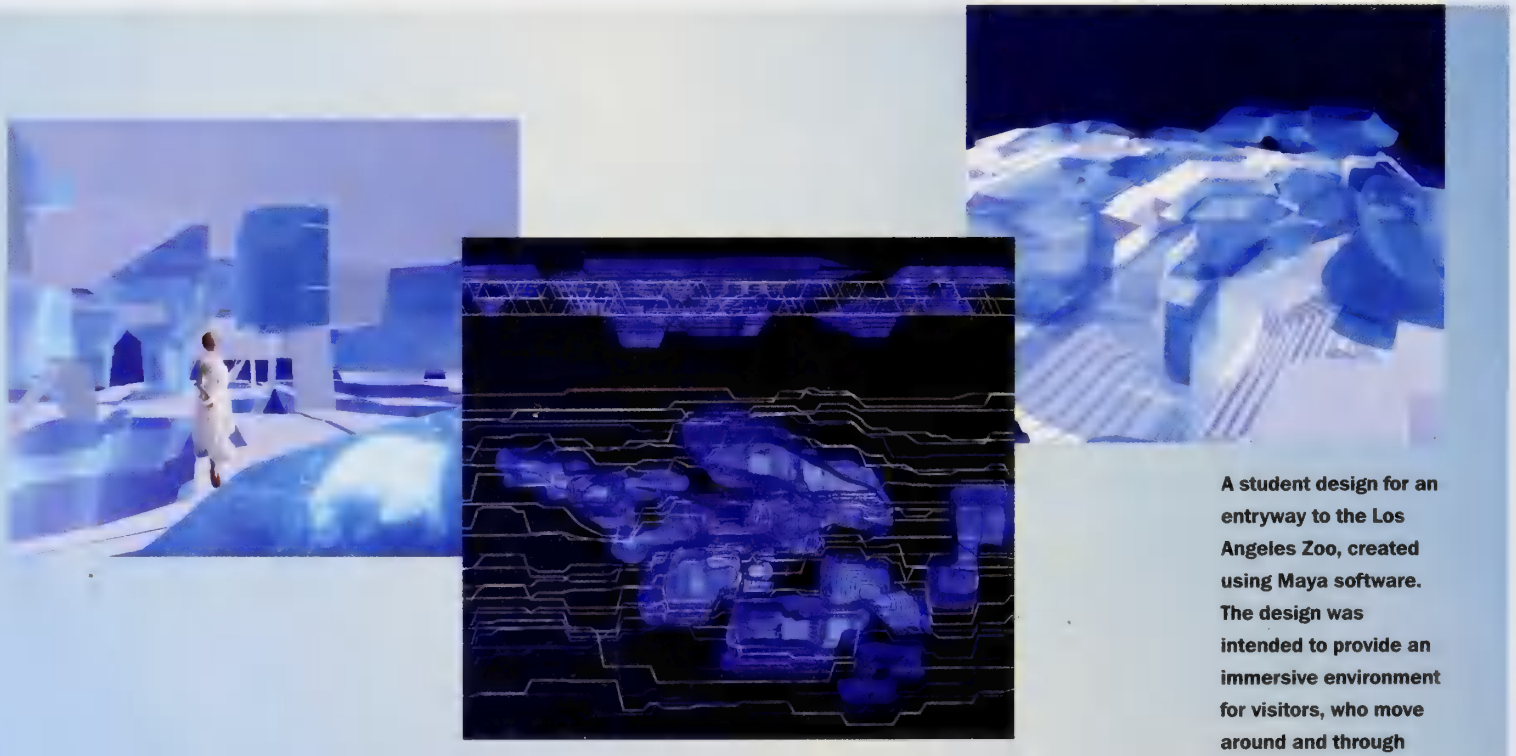
COMPUTERS ALLOW STUDENTS TO EXPLORE MINOR DESIGN VARIATIONS WITH A MINIMAL INVESTMENT OF TIME, WHILE DISTINCT ALTERNATIVES REQUIRE THE SAME PRE-DIGITAL LEVEL OF EFFORT.

As rapidly as digital technology changes, the characterization above captures pedagogical challenges that can be overcome with similar dispatch. This will require knowledgeable experimentation on the part of faculty, many of whom are caught instead supporting or resisting digitization. Texas A & M's Mark Clayton makes a distinction between digital design and what he calls "tactile" design, that is, traditionally conceived and produced work where the touch of materials is fundamental to working knowledge of building design and construction. Clayton argues that both digital and tactile design are necessary components of contemporary design teaching, but his characterization clarifies why the two sides in the digital debate both miss the mark. Those who resist computing say that digital design is to tactile design what cloning is to sexual reproduction: the first takes the pleasure, soul, and beauty out of the second. From this vantage, digital design, like cloning, produces freaks of nature. On the other side of the debate, digital design is defended as qualitatively equivalent to other technological innovations and design media, all of which have their own message and deterministic biases. Thus, just as tracing paper was understood to create transparency in building, CAD programs formulate a layered building structured around coordinates.

The flaw in the first argument is equating digital and tactile design: they serve different purposes. At present, computers both extend beyond and inadequately simulate material construction. Tactile design is necessary, at least for now, to ensure the translation from drawing to building—a process schools remain ill-equipped to teach. The flaw in the second argument, in support of CAD, is that it underestimates the computer. Digital design involves "smart media" that is different from prior forms of media: it is not a tool, but has built-in tools; it holds vast quantities of information which it can translate and reveal; it embeds links to other models, information, and versions of itself. Although we can agree that the invention of perspective or tracing paper provoked new architecture, that new way of seeing buildings pales in comparison to the new modes of thinking computers make possible.

Tools that reflect and enable design

One means to examine the interaction between the architect's thinking and computation is to look more closely into the most commonly-deployed software. At present, there is a limited range of software being used in architecture schools both in the U.S. and abroad. Like standard textbooks used in teaching medicine or law, architects for the first time have some common ground. Such unification has historically strengthened a profession's standing in the larger society. As long as the computer was conceptualized as a tool, its significance was no greater than that of a pen or pencil. But because of the cognitive implications of computing,



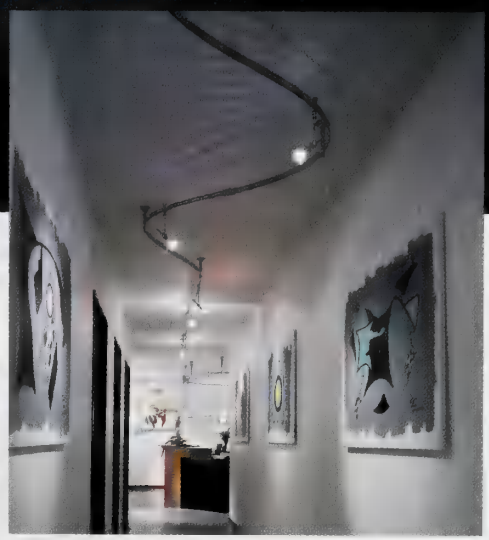
A student design for an entryway to the Los Angeles Zoo, created using Maya software. The design was intended to provide an immersive environment for visitors, who move around and through aquarium tanks.

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design software that's common to students around the world is akin to a poetic, architectural Esperanto.

A simple classification distinguishes two basic types of design software: first, production-oriented programs such as AutoCAD, ArchiCAD, or CATIA; and second, visualization software for modeling, rendering, and/or animation such as Maya, FormZ, 3D Studio MAX, StudioVIZ, Rhino, Alias, and Softimage. It might be presumed that production software is most pertinent in practice, while visualization software is the terrain of students. This easy division is undercut by the iterative design process, in which projects benefit from early exploration in visualization software but then must be translated for purposes of development in production software, later to return to viz-ware to tighten up the design.

This description of digital design highlights at least two structural determinants: the issues of translation, and the inherent biases of each piece of software. These are significant to schools because software both reflects and enables forms of thought, as does language, according to the Whorfian hypothesis. Software shares some characteristics that influence design. There is a decided bias toward surface rather than space; organization of information and the design process are increasingly significant; visualization software is not well-adapted to real-world construction; and the mathematics, algorithms, and geometric principles governing software are generally unquestioned by the designer. These traits, once made explicit, can be pedagogically addressed.

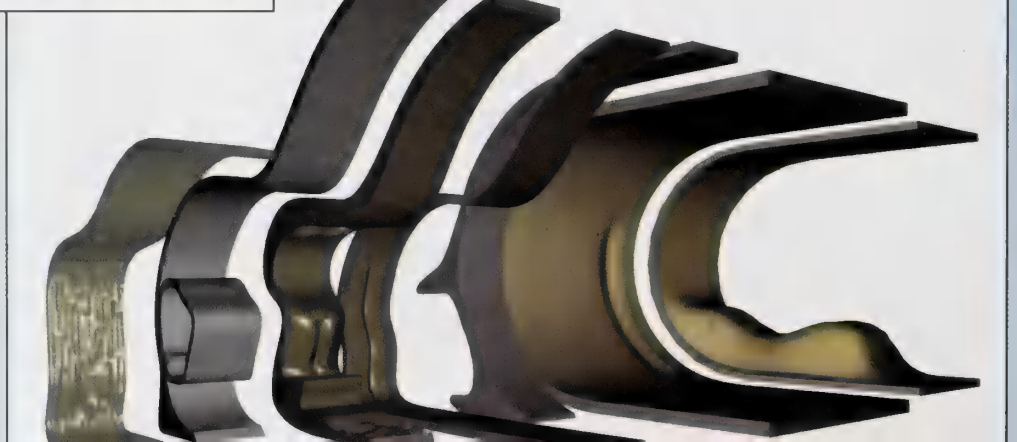
IF STUDENTS ARE EXPOSED TO A VARIETY OF DESIGN SOFTWARE, THE DESIGN PROCESS CAN BECOME AN EXPLICIT PEDAGOGIC FOCUS FOR EDUCATORS.

There are some distinct differences between software packages as well, which can be exemplified in a comparison of two programs, FormZ and Maya. In FormZ, geometric shapes like cubes, cylinders, and cones are modeled as solid, faceted forms. This parallel to physical modeling is one of FormZ's strengths; however, the designer cannot retrace her steps for revisions and reconsideration in the digital model. Moving designs into production software is not as complicated in FormZ as with animation software like Maya. Rather than geometric objects, Maya utilizes curves (actually NURBS, non-uniform rational b-splines) that can be extended into surfaces and blobs, which can be subsequently deformed and manipulated. Maya allows a reversible modeling or design process, making it possible to return to the original curve or its mathematics, according to David Erdman, who teaches at both UCLA and Rensselaer Polytechnic Institute. In the most shorthand manner: FormZ begins with geometric shapes so that models are accretions formed of additive masses; Maya begins with curves to animate, warp, fold, and morph.

Most schools tend to prioritize one visualization application in studio, which invites a particular way of thinking about design. This inadvertently teaches a design process, as the FormZ-Maya comparison suggests. If students are exposed instead to a range of applications, the design process can become an explicit pedagogic focus. While the traits of particular software packages would also seem to limit the range of design solutions, both Erdman and Clayton point out that, in skilled hands, the automated tools and internal structures of software are far less limiting and less visible than in the work of novices. In teaching, then, it is important to develop students' skills beyond the introductory, more constrained level.

What remains problematic is moving between viz-ware and production software, or between digital and material design. The 3D modeling or sketching capabilities of Studio MAX, Maya, or Softimage set a visual direction that is not yet material, but begs for higher resolution in its own terms. This yields the startlingly seductive images that grace architecture schools nationwide—images that embody little understanding of structure, construction, building systems, or even function. They are representational but not instructional, and instruction is a primary role of design drawings.





Variations on wall sections with display panels, created by students using MAYA software. MAYA allows curves to be folded and extruded into different shapes. The user can return to previous forms to explore different design alternatives.

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Bridging the divide, advancing the profession

How are computers changing the way we learn to design and build? In school, computers and the common software are creating rich, if paradoxical grounds for design experimentation. Indeed, there is an undeniable, alluring energy in those architecture schools where computers are integral to the studio. But at present, their design experimentation is not well-connected to building real projects. While schools invariably produce graduates insufficiently prepared for employment, the academy may be further removed from practice and from buildings than ever.

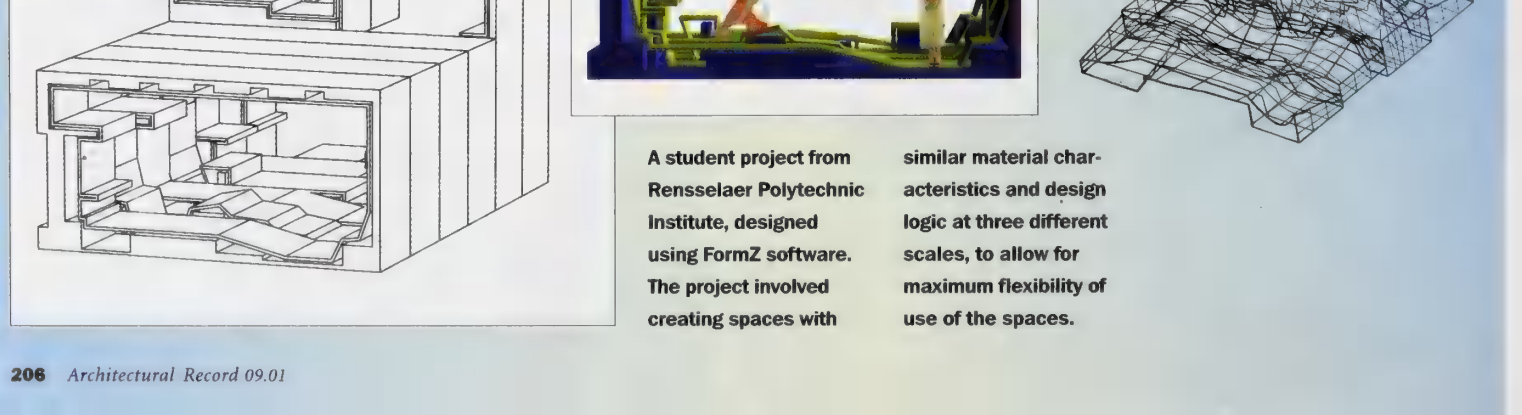
Several important factors should shift this trajectory toward digital design that has greater material and instructional implications. The current generation of design faculty uses computers in both its firms as well as its studios, and this will tend to merge the two arenas. Computer-aided manufacturing, stereolithography, robotics, milling, and rapid prototyping are moving into architecture schools, which will bring tactile, material, and structural concerns to digital design. The construction industry is simultaneously growing more sophisticated electronically, such that new methods, componénts, and processes are beginning to make digital images more buildable. The issues of translation between visualization and production programs are hot topics of software development, and we can look forward to imminent advances in the capabilities of these programs. As more computer-generated design solutions become realized buildings, the better we will understand how to teach students to design digitally.

TECHNOLOGIES SUCH AS COMPUTER-AIDED MANUFACTURING, MILLING, AND RAPID PROTOTYPING WILL BRING TACTILE, MATERIAL, AND STRUCTURAL CONCERNS TO DIGITAL DESIGN.

Schools are beginning to bridge the divide between digital and tactile design inventively. At UCLA's Department of Architecture and Urban Design, computer-driven milling machines are in constant operation as students fabricate wooden and foam models. Plans for an extensive "digital shop," called the 3-D Manufacturing Lab (image on page 200), will add new materials capabilities to 5-axis mills that can carve volumetric space as it's conceived using design software. The lab will permit students to build not just models but full-scale building details, structural elements, and components. With such tools at the ready, the computer actually fully enables new design capacities: students will be able to develop innovative forms of structure and material combinations and test them at scale. Across town, at SCI-Arc, studio professor Chris Genik and UCLA alum Greg Petroff of Vizrt intend to bring Vizrt's real-time, integrated 3D modeling software to the campus. Digital environments used in both traditional and new media (e.g., Vizrt and Hani Rashid created the virtual New York Stock Exchange) can bring actors and actions seamlessly into architectural space. Students will be able to visualize the inhabitation of spaces they are designing using software such as in FormZ. At the University of Michigan, the newly-appointed chair of the Taubman College of Architecture and Urban Planning, Tom Buresh, is working to link the school's expertise in and long tradition of building technology research with digital design. By bringing in architect-practitioners with a strong interest in materials research to studios newly infused with digital capabilities, Buresh hopes to make a transparent connection—literally and metaphorically—between the shop, research laboratories, and studios.

While the connections between digital models and buildings are crucial, they are only part of the new territory carved by computers. Computer-driven explorations are expanding the way both educators and students think about architecture. Schools embracing the new technology will lead the way to bring about emergent forms of practice. ■

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A student project from Rensselaer Polytechnic Institute, designed using FormZ software. The project involved creating spaces with similar material characteristics and design logic at three different scales, to allow for maximum flexibility of use of the spaces.

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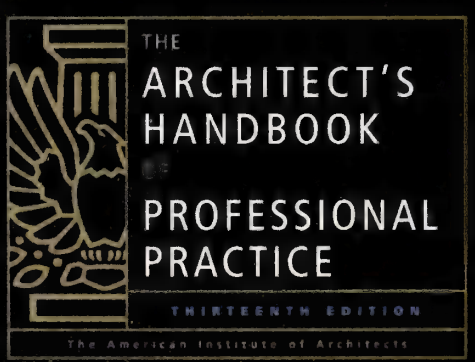
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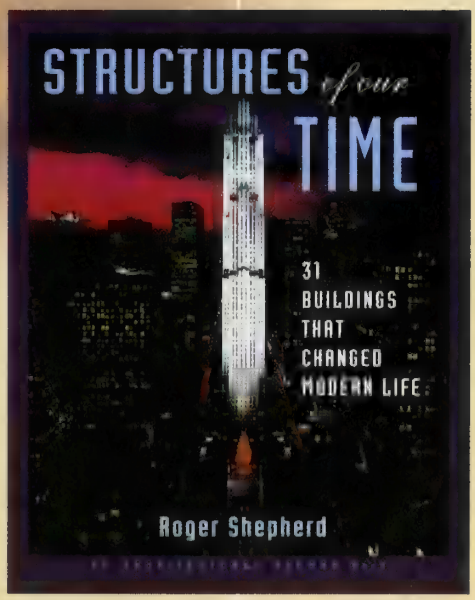
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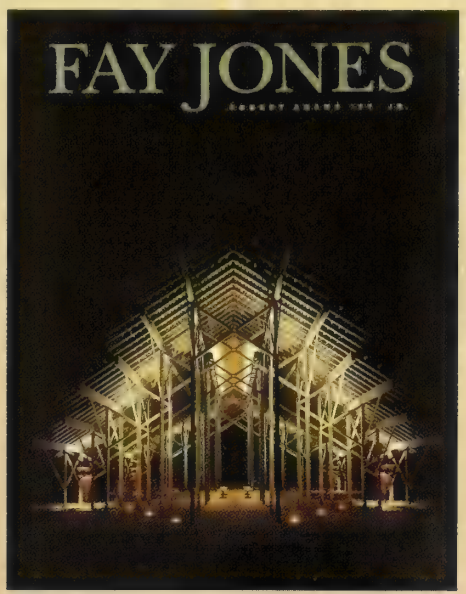
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Roger Shepherd
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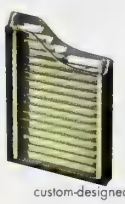


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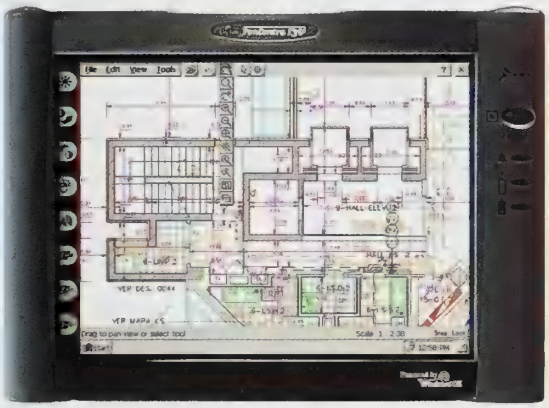
CIRCLE 76 ON INQUIRY CARD

Digital Product Reviews

Hardware and Software, In the Palm of Your Hand

By Jerry Laiserin, FAIA

Previously-reviewed examples of project management software for handheld devices include Meridian Project Systems' Prolog Pocket (RECORD, September 2000, page 193) and AEC Software's FastTrack Schedule 7.0 (RECORD, June 2001, page 200). JL



Autodesk, Inc.'s OnSite View lets users annotate CAD files with handwritten notes and voice memos. Fly-out menus maximize the screen area available for drawings.

On the Other Hand

HandEra 330 handheld computer

A key decision for an architect buying her first handheld PC is whether she will need or want to view and annotate CAD files on its tiny screen. If so, current software options dictate choosing a machine with Microsoft's WindowsCE operating system (OS, version 2.11 or higher), such as Compaq's iPaq PocketPC, reviewed below. However, virtually any task other than CAD can be accomplished on either Windows-compatible PocketPCs or on devices using Palm Computing's PalmOS, which also has the advantage of being easier to synchronize with Macintosh computers. Which brings us to the HandEra 330.

HandEra uses the same microprocessor and memory as Palms and Palm-compatibles offered by Handspring and Sony. Like all PalmOS devices, HandEra's software includes an address book, calendar, to-do list, expense reports, notes, e-mail, and synchronization of these programs with their desktop counterparts. Add-on software lets users work with portable versions of Microsoft Office files. Information is entered by using either the stylus on the touchscreen (via Graffiti writing—a built-in handwriting recognition system), or by adding an optional keyboard.

Instead of dedicating 20 percent of the screen area to Graffiti input, as on other PalmOS devices, HandEra's input area can be hidden, making the entire screen available for reading notes or scrolling through lists. Although physically the same size, HandEra's screen has three times the resolution of other PalmOS machines (320x240 versus 160x160), so more information can be viewed at once, albeit at very tiny font sizes. Information on the screen can be displayed in either portrait (vertical) or landscape (horizontal) mode, which could be a convenient feature for future applications (other than Peanut Press' eBook Reader, few add-on software programs support landscape display mode at present).

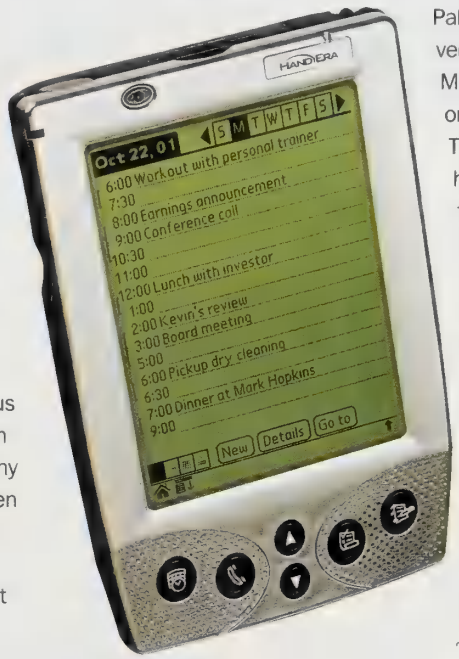
HandEra was one of the first PalmOS manufacturers to include voice recording capability for short memos. The model 330 also sports two expansion slots: one for Secure Digital (SD) add-ons used in Palm Computing's latest machines; and another for CompactFlash (CF) add-ons widely used with laptops and digital cameras. Both SD and CF are open standards, meaning that more add-on devices will be able to be developed for them—which gives HandEra more flexibility than its PalmOS competitors such as HandSpring's Visor, which has expansion slots that are proprietary.

Architects looking for a mid-priced PalmOS device with superior viewing and expansion capabilities should get their hands on a HandEra.

System requirements: None.

HandEra, Inc.
2859 104th Street
Des Moines, IA 50322
(515) 252-7522
www.handera.com

The HandEra is a PalmOS device, with a built-in voice recorder, that can display information in either portrait or landscape mode.



Windows to Go

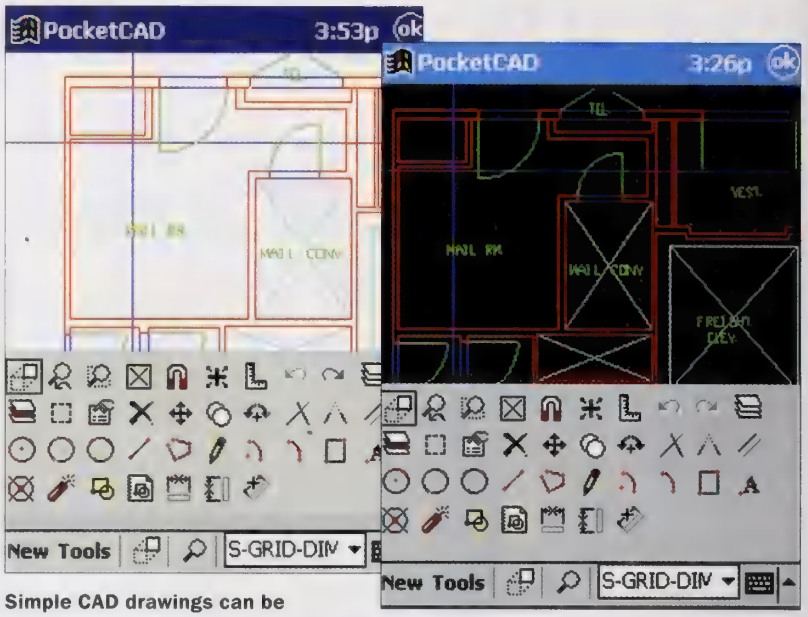
Compaq iPaq 3650 PocketPC

Microsoft may have needed three tries to produce a version of Windows that was competitive with Apple's Macintosh operating system (OS)—but that third effort put Microsoft in the game. The same has happened with the company's foray into the world of handheld devices. Machines that use the PalmOS still lead the market, but version 3.0 of WindowsCE has put Microsoft and PocketPC hardware on the map as serious competitors. The most popular line of PocketPC hardware is Compaq's iPaq series; the 3650 is the mid-priced favorite. (The top-of-the-line model 3670 offers twice the memory—64MB—but also costs a third more).

Like all WindowsCE handhelds, the iPaq 3650 (pictured in "Digital Architect," page 198) is a bit larger and heavier than most PalmOS machines. But these disadvantages are more than offset by a faster processor, more memory, better

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

WWW For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **www.architecturalrecord.com**



Simple CAD drawings can be created in the field quickly using Arc Second's PocketCAD Pro. The software uses many commands familiar to AutoCAD users.

expandability, and a brighter screen in full color—albeit such perks result in a shorter battery life and higher cost. For users whose tasks require Windows compatibility, this may be a fair set of trade-offs. WindowsCE includes pocket versions of Microsoft Word, Excel and Outlook that synchronize easily with desktop files, without the need for add-on helper software. The OS also supports a wide variety of other applications—notably CAD viewing and editing tools.

Users can add hardware to the iPaq via slip-on sleeves that contain slots for CompactFlash (CF) or PC Card add-ons. PC Cards are a universal standard for laptops, and can transform the iPaq into a presentation device, a network node, or a wireless receiver, or any two at a time. The iPaq also includes a voice recorder, and the memory included in this version is sufficient for using it.

For those who want Windows everywhere, need strong graphics capability, and can handle its additional cost and bulk, the iPaq 3650 beats the Palms hands-down.

System requirements: None.

Compaq Computer Corporation
20555 State Highway 249
Houston, TX 77070
(800) 888-9914
www.compaq.com

On Your Mark
Autodesk OnSite View 2.0

Some architects spend their working hours at desktop PCs running CAD software; others divide their time between the office and the field, or visit their clients and consultants, but don't need to use CAD files. However, more and more practitioners—whether large-firm project managers or small-firm principals—benefit from being able to open, view, and mark up CAD files on the go. These are the folks Autodesk targeted for its OnSite View (OSV) software.

Version 1.0 of OSV (reviewed in ARCHITECTURAL RECORD, September 2000, page 193) delivered basic CAD file manipulations, such as pan and zoom, zoom extents, and toggling layers, and also supported features from Autodesk's Volo View, such as measurement of areas and distances, and simple redlines and annotations. The latest version of OSV coordinates with AutoCAD 2002 and Architectural Desktop 3.3, and adds a number of useful enhancements.

Instead of the previous on-screen toolbars, OSV2.0 uses fly-out menus to maximize the screen area available for viewing drawings. Enhanced markup includes user-definable symbols, which can include imported images—like having a set of custom rubber stamps for annotating drawing files. For hardware that includes recording capability, such as Compaq's iPaq, OSV's audio note function allows users to link dictated voice files to specific locations on a drawing—perfect for construction observation and punchlists.

As a WindowsCE application, OSV2.0 can synchronize with files stored on the Internet, such as at Autodesk's PointA Web site or Buzzsaw's MyFiles or ProjectFolders. Files created using OnSite View are saved in a format called OSD; firms wishing to publish their DWG or DXF files in this format on a server (to provide firm-wide access) can purchase OnSite Enterprise to make the transition possible. Whether used stand-alone or enterprise-wide, OSV offers the best view of CAD, in the office or on the go.

System requirements: Handheld device, such as PocketPC, running WindowsCE2.11 or higher; desktop version of AutoCAD 2000 or higher, or Architectural Desktop 3.0 or higher.

Autodesk, Inc.
111 McInnis Parkway
San Rafael, CA 94903
(415) 507-5000
www.autodesk.com

CAD "en plein air"
Arc Second PocketCAD Pro 4.0

Artists from the romantic era onward made much ado about escaping their studios to paint *en plein air* to capture the immediacy of the outdoor experience on canvas. Architects, too, have a long tradition of making field sketches, but rarely attempt precision drafting outside the office. Full-size drawing sheets, boards, and T-squares or parallel rules are not exactly portable. Their digital successors, CAD-capable computers, are desk-bound boxes or clamshell-style notebooks that are unwieldy to use on foot. For those occasions when precisely drawn designs or revisions must be done at the job site or in a client's or contractor's office, PocketCAD Pro 4.0 (PCP4) software on a WindowsCE handheld computer fills the bill.

Given the small screen size, awkward input methods, and limited memory of WindowsCE PocketPC devices, few architects are likely to try creating new drawings from scratch in PCP4. Most architects use the software to edit existing drawings for as-found or as-built conditions, and to sketch plans from on-site measurements in a compatible digital format. Architects engaged in construction administration, or facility management and operations, may also need to issue original sketches on the spot for integration with record drawing files back in the office.

PCP4 is "powered by Autodesk technology," so commands such as move, offset, snap, and so on will be familiar to AutoCAD users. The program can handle files in AutoCAD DWG and DXF formats, as well as Web-compatible DWF files (via a recently released add-on). While PCP4's redline management and markup tools are not as slick as those in Autodesk's OnSite View, some users have a greater need to edit and create drawings than merely to annotate them. For such folks (and you know who you are) PocketCAD Pro is a must-have.

System requirements: Handheld device, such as PocketPC, running WindowsCE2.11 or higher.

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Dulles, VA 20166
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www.pocketcad.com



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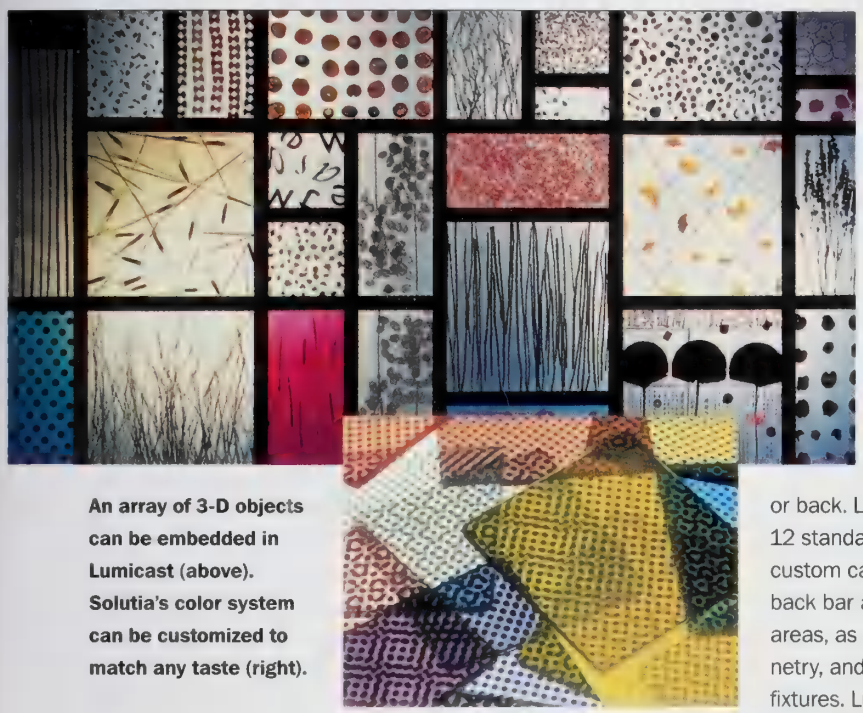
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CIRCLE 78 ON INQUIRY CARD

New Products

The biggest breakthroughs this year in the interior finish category involved ceiling and plastic innovations, as seen below. Manufacturers continue to explore the use of new materials, including flooring made from Palm wood, solid surfacing that looks like glass, and laminates that are both recycled and recyclable. *Rita F. Catinella*



An array of 3-D objects can be embedded in Lumicast (above). Solutia's color system can be customized to match any taste (right).

Colored interlayers and 3-D objects add drama to interior light

Two introductions this year manipulate plastic, glass, and other materials to alter interior light in new ways. Lumicast hand-cast translucent panels from Skyline Design capture embedded 3-D objects (such as rose petals or wheat) in clear polymer that can be lit from the front or back. Lumicast panels come in 12 standard designs with infinite custom capabilities: bar tops and back bar areas, retail transaction areas, as an inset detail in cabinetry, and in feature walls and light fixtures. Lumicast is offered in a standard ¾-inch thickness, but can also be custom fabricated. Available in sizes up to two feet-by-six feet, Lumicast works best in modular or grid format.

Traditionally used as an exterior component in buildings, architectural laminated glass is now seeing increased use in an artistic design option in interior spaces. Currently available in over 600 colors and nine designs, the colored plastic interlayers from Solutia are made with heat and light-stable pigments, instead of dyes, to produce truer colors. 773/278-4660. Skyline Design, Chicago. CIRCLE 200

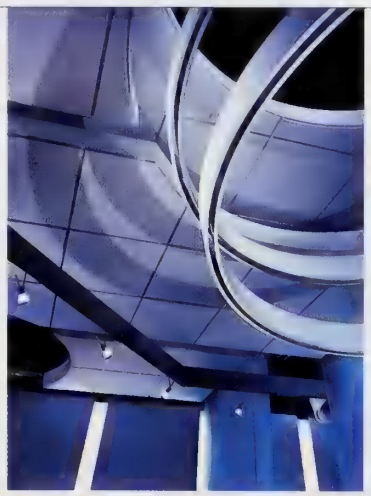
877/674-1233. Solutia Inc., St. Louis. CIRCLE 201

Translucent panels among new ceiling options

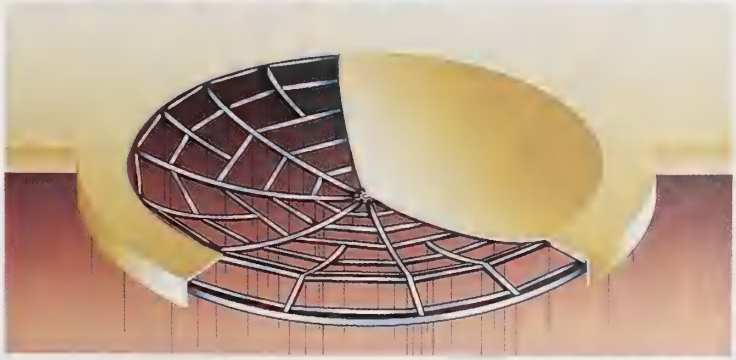
During NeoCon in May, the USG showroom introduced a strong grouping of new products to the ceiling category. Translucents Luminous Infill panels can be integrated with lighting to create a variety of visual effects. The fully accessible translucent panels are available in three finishes: Lexan (either glass-green matte or clear matte) and FRP (natural). The Class A panels accommodate both curved and flat ceiling systems, and can be matched with coordinated suspension ceiling colors.

Another new offering, C^2 Paired Compässo Channels, are available in four, six, and eight-inch heights, as either straight or curved components. They can be configured to create circles, straightaways, curves, arcs, angles, logos, or symbols. Lighting and signage can be hung or mounted on the channels in a variety of ways. The channels can be hung from ceilings with hanger wire, cable, or rods.

In addition, the USG Drywall Suspension system now offers a pre-engineered and prefabricated system for designing and building ceiling domes quickly, precisely, and cost effectively. The system utilizes custom interlocking components that eliminate the guesswork of on-site measuring, bending, and cutting. It reduces dome installation costs by as much as 50 percent compared to using traditional black iron and hat channel construction methods. The components are completely integrated for on-site construction. 800/USG-4YOU. USG, Chicago. CIRCLE 202





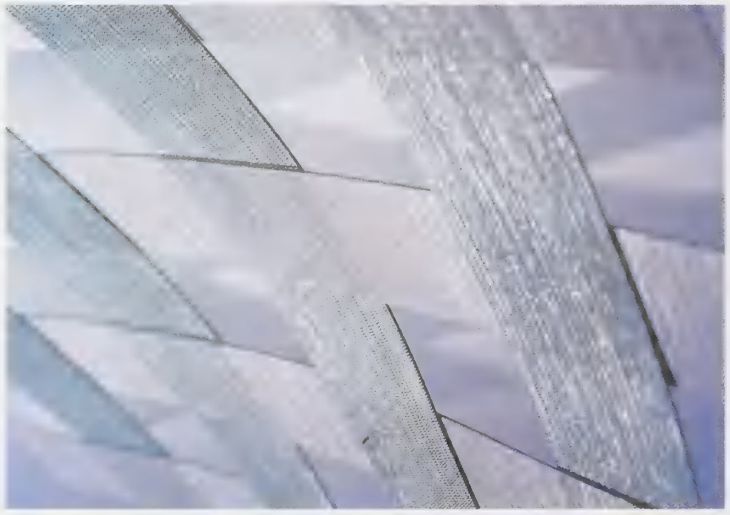


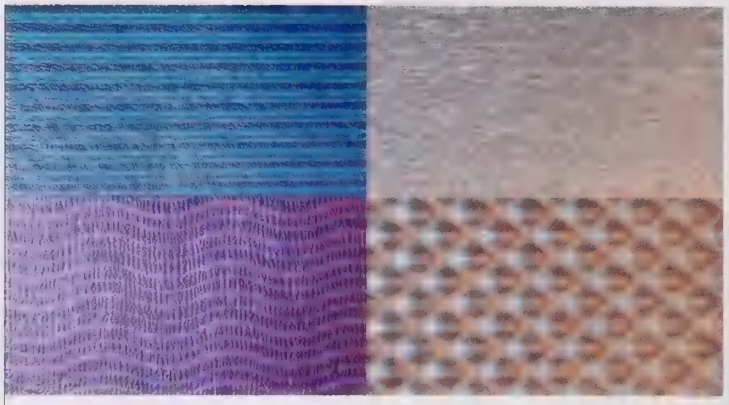
Clockwise: Paired Compässo Channels; curved translucent infill panels; pre-engineered dome system.

New Products

▼ Surface tension

Xorel Surfaces is the first woven hard surface using Carnegie's Xorel textile. Developed exclusively by Carnegie, Xorel Surfaces combines the colors, patterns, and textures of a woven textile with the strength and flexibility of a rigid material. Even though the textile is on the surface, the material can be drilled, cut, bent, tapped into, and heat-draped. Created by thermofusing PETG, a polyester resin, with Xorel, the end result is a durable, cleanable, hard surface with no chlorine content or plasticizers. 516/678-6770. Carnegie, Rockville Centre, N.Y. **CIRCLE 203**





▲ Far out flooring

The new Amtico Colormetrics and Techno styles offer psychedelic color lines and simulated 3-D textures. Colormetrics offers a range of floor tiles in eight "fruit flavors" (Lemon, Cherry, Blueberry, Spearmint, Lime, Raspberry, Plum and Tangerine), with Rib or Wave patterns visible beneath a protective wearlayer. The Techno range offers metallic styles using Amtico's magnetic embossing technique to give the tiles a simulated 3-D effect. 800/268-4260. Amtico International Inc., Atlanta. **CIRCLE 204**



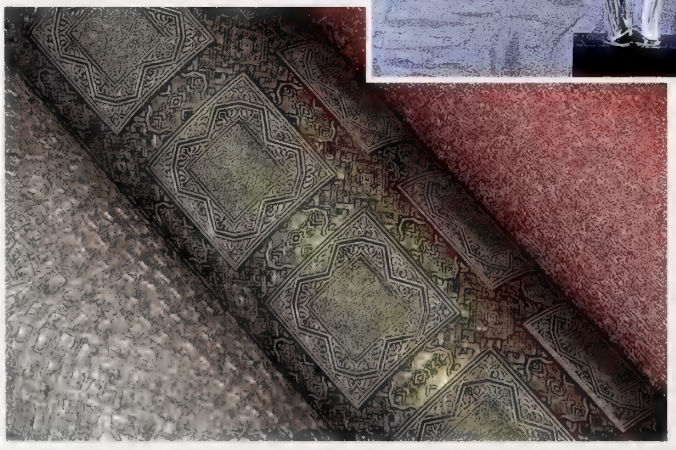
◄ Woven vinyl flooring

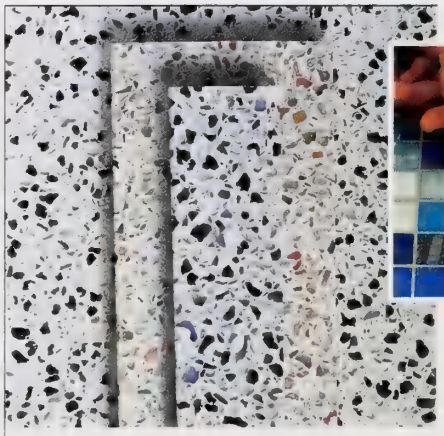
Back in 1997, Sandy Chilewich's award-winning line of fabric RayBowls for the tabletop met with great success. In keeping with her passion for textiles, Chilewich introduces Plynyl, the result of an intensive design and research process to create a woven vinyl floor surface that is washable, flexible, and versatile. Available in tiles, mats, and wall-to-wall, Plynyl is offered in a multitude of weaves, ranging from the natural look of a multi-colored sisal, to the high tech feel of aluminum. 212/679-9204. Chilewich, New York City. **CIRCLE 206**

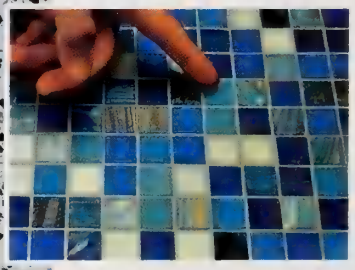
► Covering solutions

At this year's NeoCon, Omnova Solutions offered an array of new wallcovering options. New products include MemErase dry erasable wallcovering product and Wall Power, from Muraspec N.A. (right). Some of the metallic-like products on display from Omnova's Tower Contract division (below from left to right) were Santiago, Marrakech, and Meteor. 330/869-4200. Omnova Solutions Inc., Fairlawn, Ohio. **CIRCLE 205**









▲ Check mate

Bisazza's life-size chessboard display at the Coverings trade show in May showed off its mosaic and slab products. Petrae (above left) derives its look from a mix of chips of glass and quarried stones in a resin matrix. Ten new colors have been added to Le Gemme (above right), the company's proprietary mosaic tiles. The new colors include six shades of blue, two in green, and two in lavender. 305/597-4099. Bisazza N.A., New York City. **CIRCLE 207**



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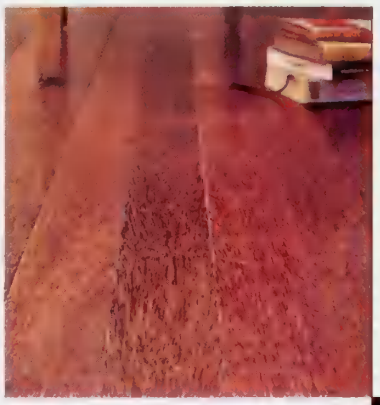
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*Life Cycle Cost Study, 1995 Ducker Research Company

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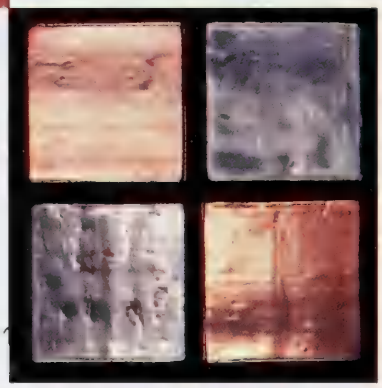
CIRCLE 79 ON INQUIRY CARD

New Products



▼ Muted metallics

Metallics handmade glaze wall tiles are offered in bronze and pewter. The five-inch-square tiles were created with a muted glaze and deliberately varied to create a subtle activity beneath the metallic finish. The tiles can be used all in one color for a dramatic effect or paired with other non-lustrous tiles. 212/644-2782. Paris Ceramics (USA) Inc., New York City. **CIRCLE 209**



▲ Standing over a palm tree

Palm wood flooring is one of the new products from Smith & Fong Plyboo. The palm wood comes from plantation-grown coconut palms that grow throughout Southeast Asia. After 60 to 80 years these trees stop producing nuts and are usually removed and replaced with new ones. 866/835-9859. Smith & Fong Plyboo, San Francisco. **CIRCLE 208**



▲ Colorful metal paneling system

Metal laminates by MóZ Designs are specifically created for commercial interiors, and come in over 10 patterns, 16 colors, and four perforation sizes. Suggested applications include column covers, wall panel systems, privacy screens, canopies, and display units. The Google Headquarters (above), designed by Gryphen Architecture, features the metal laminate paneling system in the Clouds pattern with custom color finishes. 510/444-0853. MóZ Designs Inc., Oakland, Calif. **CIRCLE 210**

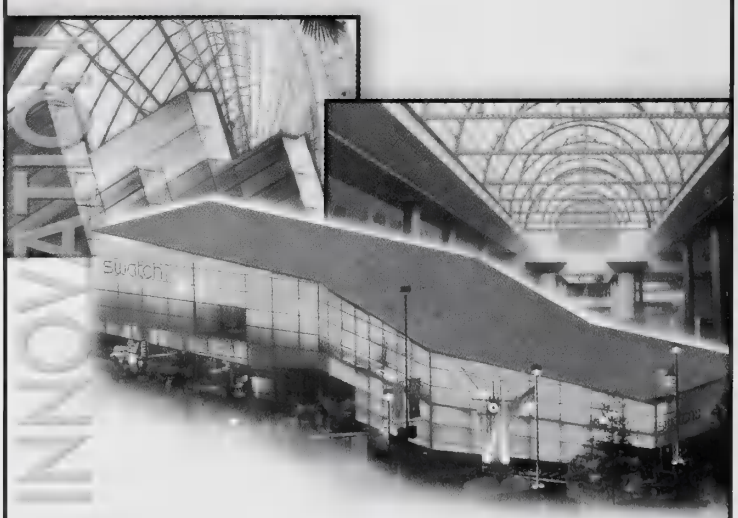
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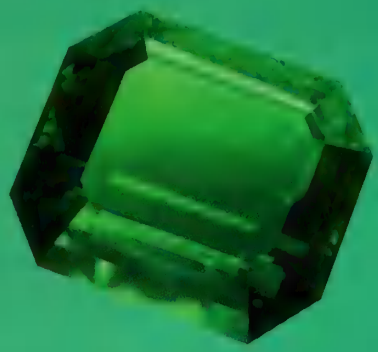
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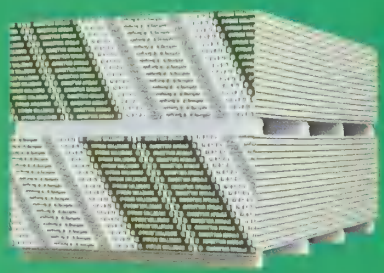
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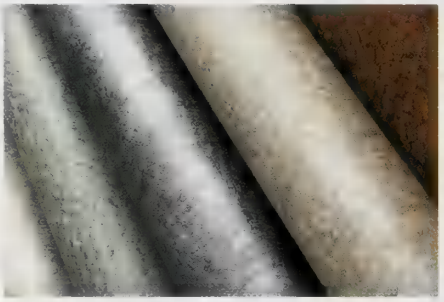
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New Products

▼ Wonder wall

Marlite has redesigned its Marlite Modules decorative wall product, enabling architects to design their own wall grid patterns in a variety of configurations, colors, and finishes. The modules systems are ideal for office, financial, as well as casual dining, quick service, and grocery settings. The system now offers 15 different panel sizes, which can be applied to the wall in an array of patterns. The new finishes include solid color panels, stained particleboard, wood veneers, and an expanded range of faux printed finishes. 330/343-6621. Marlite, Dover, Ohio. **CIRCLE 211**





▲ Turning walls into gold

Innovations has designed overprints on its Eco-Alchemy wallcovering products. The four patterns, Wave, Honeycomb, Brushstroke, and Coral, are comprised of wood pulp and recyclable polyester. They are printed with water-soluble dyes and contain no heavy metals. Eco-Alchemy prints are breathable, reducing mold and mildew on the wall. The natural wallcovering is 54-inches-wide, and has a Class A flame rating. They are available in over 30 SKU's in addition to 29 solid colors. 212/807-6300. Innovations in Wallcoverings Inc., New York City. **CIRCLE 212**

► Tree tiles

RealWood Tiles are made from North American hardwood veneers saturated with thermosetting resins. The tiles do not absorb water, and are an alternative to ceramic and other tiles for backsplashes, wall tiles, residential accents, and commercial installations. They come in seven colors and three standard sizes, can be easily cut, and install like ceramic tile. 866/852-2340. RealWood Tiles, Amherst, N.Y. **CIRCLE 213**



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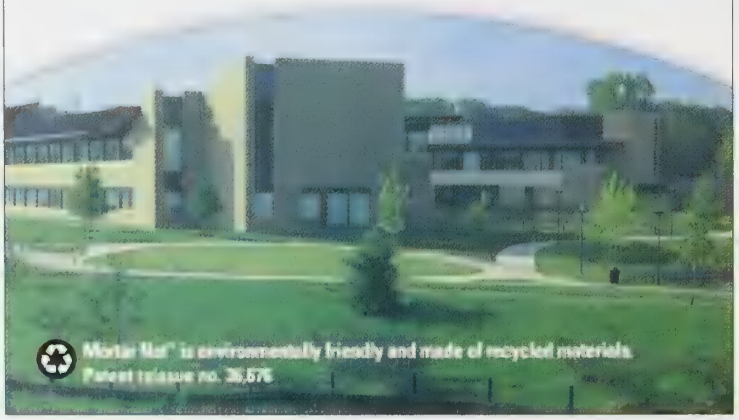
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New Products



▲ Glazing the surface

The Glass Series is a new formulation of solid surface material developed exclusively by Avonite to resonate the translucency and dimension of natural glass. This translucency makes the Glass Series ideal for a variety of back-lighting techniques. The collection (shown here from left to right) includes Sky Glass, Frosted Glass, Cobalt Glass, and Antique Glass. The result of Avonite's recent creative partnership with designer Lindsay Dakota is a collection of furniture pieces using their products, including a desk design made of products in the Glass Series. 800/428-6648. Avonite, Albuquerque, N.M. **CIRCLE 214**

► I'll be back



Abet Laminati has launched Tefor, its first recyclable and recycled surfacing material. Tefor, an alloy of manufacturing wastes of high pressure laminates and chemically inert polypropylene, can be used for interior applications including retail shelving, backsplashes, and vertical cladding. Tefor is available in black or various natural shades. 800/228-2238. Abet Inc., Englewood, N.J. **CIRCLE 215**



◄ Pearlescent patterns

One of the recently introduced patterns in Nevamar's 2001 collection of high pressure laminates is Blue Shimmer HauteLink, the latest colorway in the HauteLink series. Blue Shimmer HauteLink and the other pearlescent patterns in Nevamar's Hallmark collection are offered in postforming and vertical forming grades in popular sheet sizes. 800/638-4380. Nevamar Decorative Surfaces, Odenton, Md. **CIRCLE 216**

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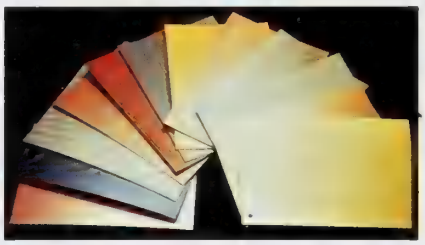
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CIRCLE 88 ON INQUIRY CARD

New Products

► Color to dye for



Tabu's line of dyed natural and reconstituted veneers is now available in the U.S. The veneers include hundreds of colors, patterns, and species, and are aniline-dyed using a computer calibrated coloring process. The dyeing process allows the veneers to retain the characteristics of the wood, while eliminating color variations. Tabu veneers reduce the waste experienced with natural veneers caused by these variations. 866/989-1111. WTP Corporation, Englewood Cliffs, N.J. **CIRCLE 217**

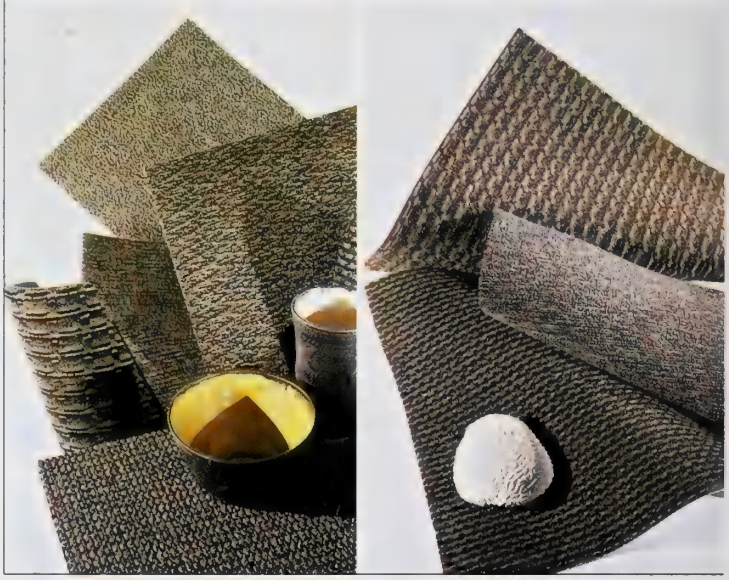


◄ Magnifique metallics

Liri's metal line includes ten new textures in sparkling silver, bringing the total number of high pressure laminates to 30. The postforming aluminum surfaces are hammered, corrugated, and polished, sized into four-by-ten sheets, and protected by a lacquering and anodizing process. 888/522-5474. Liri America Corp., Fairfield, N.J. **CIRCLE 218**

▼ Carpet collaboration

The Tandem Collection is a new line of modular and broadloom carpet from the Tandus Group companies—C&A Floorcoverings, Monterey Carpet, and Crossley Carpet Mills. The Tandem Collection is a cross-category coordinated collection which utilizes the same color lines for all three brands. The Collection includes three 12-foot broadloom styles and three modular tile and six-foot styles. In addition, Tandus Group has developed a common color palette to help develop other coordinating products. 706/259-9711. C&A Floorcoverings, Dalton, Ga. **CIRCLE 219**



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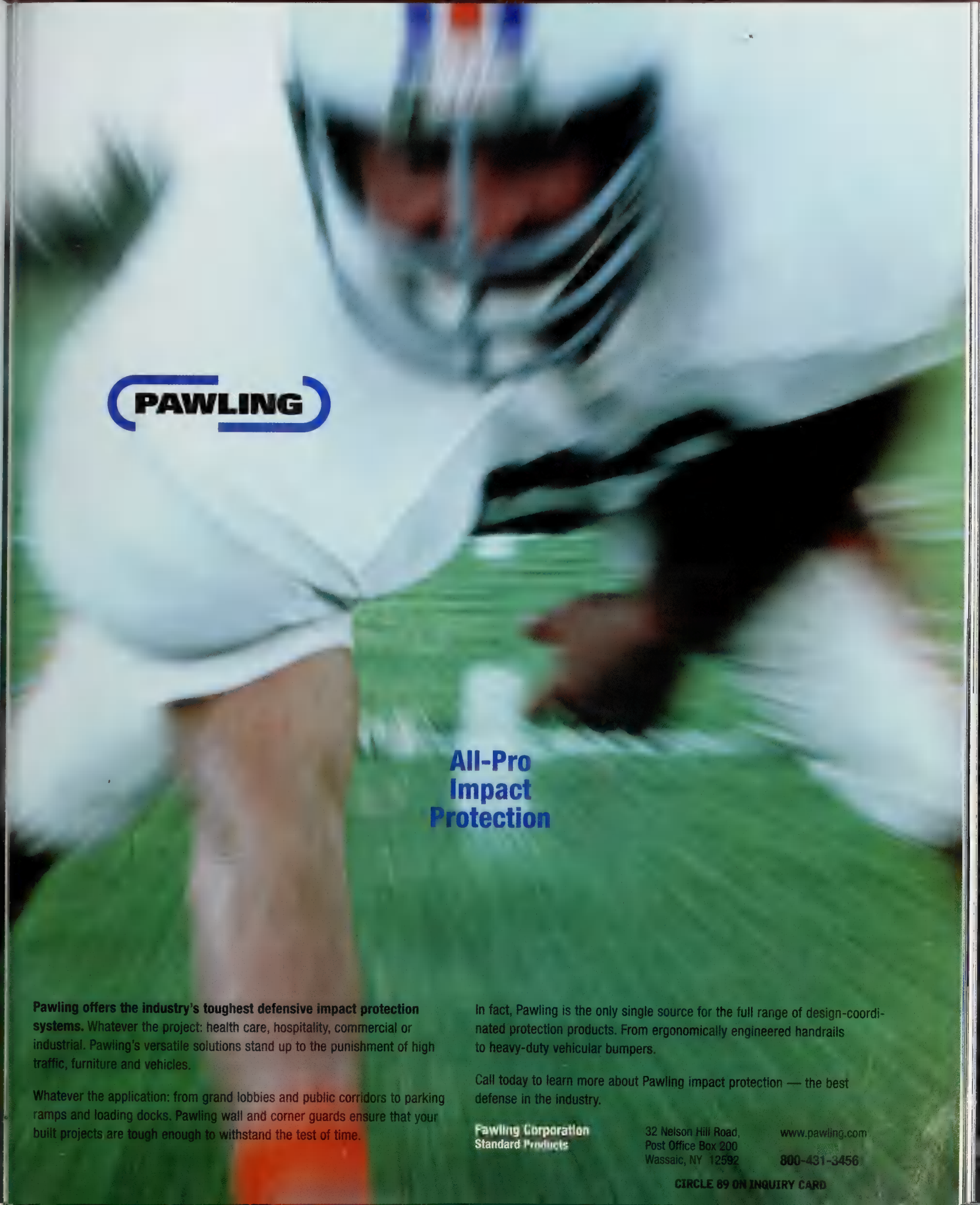
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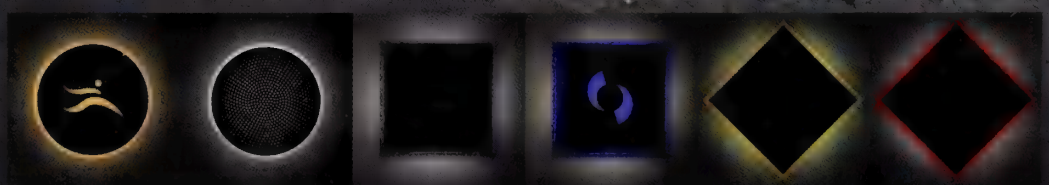
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CIRCLE 90 ON INQUIRY CARD

Product Briefs

▼ Creating your own groove

The Groove lounge seating system, shown here at the Steelcase Wood showroom in Chicago, provides mobile workers with plug and play touchdown locations. It is equipped with a simple "kit of parts" to be configured into lounge seating, ottomans, shelving units, tables, or docking stations for the home, open office, private office, meeting area, or waiting room. 888/STEELCASE. Steelcase Wood Furniture, Grand Rapids, Mich. CIRCLE 220







Product of the Month
Suspended spaces

Spotted at this year's International Contemporary Furniture Fair in New York, Bernstein Design specializes in the design, fabrication, and installation of "suspended spaces." Stairs, floors, counters, tables, chairs, beds, light fixtures, and even small houses are magically suspended in mid-air, secured only by stainless steel connectors and cables—rigid supports and bracing are not necessary. The Suspended Stair (above left) is made of two-inch-oak treads that also come in glass or metal. Each tread is secured with multiple stainless steel cables, each with a breaking strength of 6100 pounds. This version of the Chair Without Legs (above right) features a seat and back of brushed stainless steel, and cables with a breaking strength of 920 pounds. 312/432-1212. Bernstein Design Inc., Chicago. CIRCLE 221

▼ Hardworking freeloader

Bretford's newest addition to the Free System line of furniture is Freeloader, a mobile, personal storage unit that won two Best of NeoCon awards this year. Designed by Formway Design Studio of New Zealand, Freeloader features a multi-functional work surface, and internal and external shelving, file drawers, pencil trays, and waste bins that can be easily reconfigured by the user without tools. 800/521-9614. Bretford Manufacturing Inc., Franklin Park, Ill. CIRCLE 222



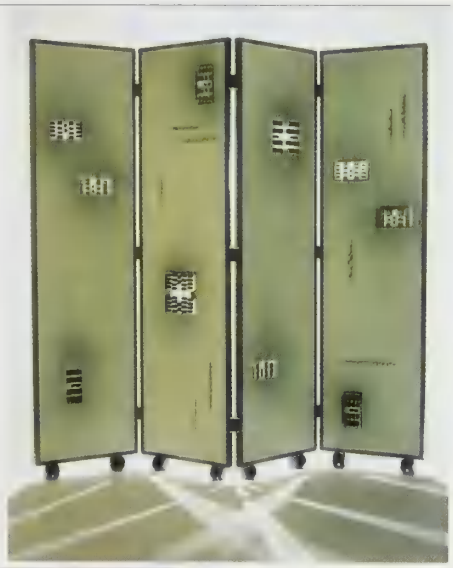


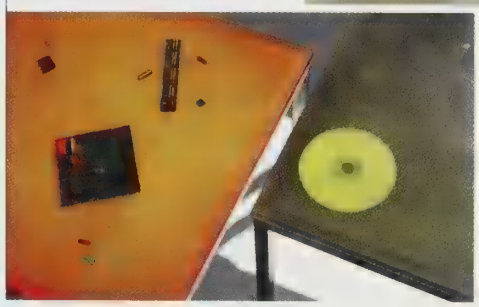
▲ Don't look like a tourist

The Profile One Infomast directional system features extruded aluminum profiles fitted with precision stainless steel castings. Available components include informational panels, tables, CPU housings, flat screen displays, and foot rests. Profile One can incorporate a CPU box with computer connections for use as a stand-alone station. 800/553-7722. Cornelius+, Pittsburgh. CIRCLE 223

► Intel inside

Artist Marcia Stuermer's "bits" line of furniture (below), screens, and hardware, is made of translucent resin, recycled computer components, botanical elements, and/or custom embedments. The Relica product line (right) is made from hand-carved Trupan MDF from sustainable sources and recycled computer circuit boards. 800/941-1935. Fossil Faux Furniture, San Francisco. CIRCLE 224

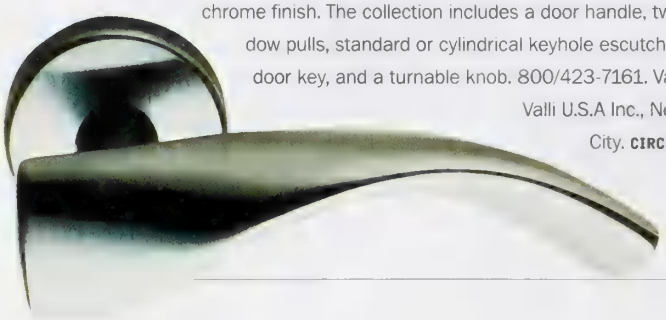




Product Briefs

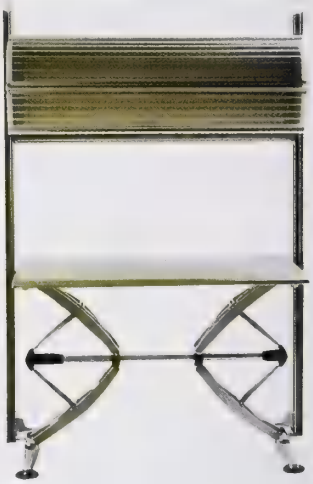
▼ Sinuous hardware

YK Duemila, the latest addition to Valli&Valli's Fusital collection, is a new collection by Yoshimi Kono that highlights the sinuous aesthetic of the lever. Crafted from brass, each piece in the collection is available in a brass, satin brass, or satin chrome finish. The collection includes a door handle, two window pulls, standard or cylindrical keyhole escutcheons, a door key, and a turnable knob. 800/423-7161. Valli& Valli U.S.A Inc., New York City. **CIRCLE 225**



► Ahead of its time

This summer the Avio table system made a cameo appearance in "*A.I. Artificial Intelligence*," in the office of a futuristic scientist played by William Hurt. Designed by the husband and wife team of Lisa Bottom and John Duvivier, Avio is height-adjustable, comes in rectangular, corner, and curvilinear worksurface shapes, and can support shelves, whiteboards, or tackboards, and overhead storage (in a clamshell design). 800/851-1196. Herman Miller Inc., Zeeland, Mich. **CIRCLE 226**





◄ Have a ball

Originally produced for the garden of the Central Museum of Utrecht, the Skippy portable stool is a versatile seat or side table for indoor or outdoor use. Its open handle, designed for carrying, also makes a good cup holder or way of securing the stool in a public space. Made in the Netherlands. 212/708-9746. The MoMA Design Store, New York City. **CIRCLE 227**



▲ Powerful legs

The Salone Collection offers a variety of power/data solutions, seen here through the desk's elegant parson leg (right). Including a roster of modular casegoods, sectional and freestanding lounge seating, and occasional tables, Salone comes in 12 solid colors, 17 hardwood colors, and three metal finishes. 800/533-1696. Tuohy Furniture Corp., Chatfield, Minn. **CIRCLE 228**

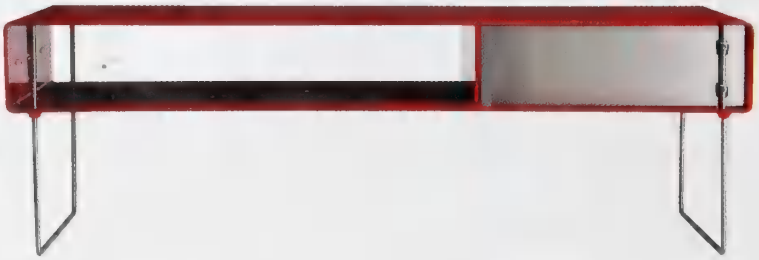
▼ Well managed

The Vista Series for open-space power and communications delivery allows specifiers to incorporate full data/communications and power into any open space. The Series can be used with modular furniture or as a stand-alone wire and cable management system. It consists of two round- or square-end channels that contain wires or cables and support a decorative center panel. 800/621-0049. The Wiremold Co., West Hartford, Conn. **CIRCLE 229**



▼ Custom metalwork source

Since 1998, Amuneal has been manufacturing the MetalForms furniture line and has offered custom architectural metalwork, retail fixtures, prototypes, and custom contract furniture. The Axis Cocktail table, one of Amuneal's latest introductions, is formed from two pieces of laser-cut aluminum, which are powder-coated in a variety of colors. 215/535-3000. Amuneal Manufacturing Corp., Philadelphia. **CIRCLE 230**





▲ Hydraulic elevator system

With the introduction of the Schindler 330A, Schindler now offers a complete holeless solution for a wide range of low-rise buildings, including office buildings, retail locations, hotels, hospitals, and more. The new elevator eliminates the below-grade jack-hole, and expands the company's holeless hydraulic offering to low-rise building owners and managers. 973/397-6500. Schindler Elevator Corp., Morristown, N.J. **CIRCLE 231**

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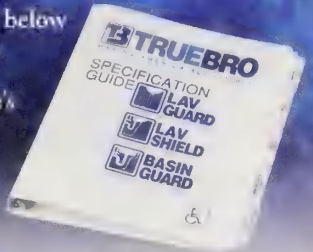
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CIRCLE 91 ON INQUIRY CARD

Product Briefs



◄ Behind door #1

The InfoDoor concept consists of four door designs: GraphicDoor, AdDoor, PocketDoor, and LogoDoor. The GraphicDoor features a large digital graphic (sample shown), AdDoor is a vendor-provided promotional door, PocketDoor has a crystal clear thermoformed pocket, and LogoDoor incorporates the retailer's name or logo on the door. 800/543-4455. Chase Industries Inc., Cincinnati. **CIRCLE 247**



▲ Flexible collection

The Flex Collection, designed by Brian Kane, consists of a chair with or without a tablet, an ottoman, tables, and an easel. The chair and ottoman frames are made of tubular steel and feature a mesh fabric covering available in black, silver, natural, red, yellow, blue, and green. The chair has a perforated steel platform under the seat for easy access storage. The frames are available in silver and black. Martin Brattrud is currently developing several new companion pieces for this collection. 323/770-4171. Martin Brattrud Inc., Gardena, Calif. **CIRCLE 248**

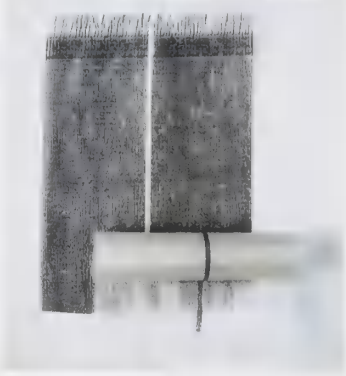
► Grows with you

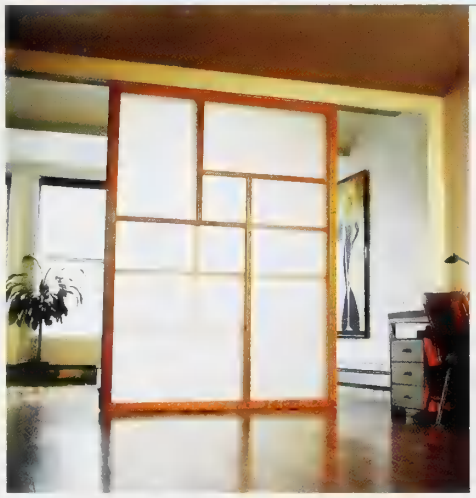


Seed, a stainless-steel and glass table designed by Marc Trautrimas for Arc, and manufactured by Vortex, is part of a new line of modular home/office furniture that includes a side table and a bookshelf/CD rack that wall- or floor-mounts with adjustable height shelves. The 21-inch-high table extends with telescoping satin aluminum legs up to a 32-inch dining or desk height. 718/599-3338. Arc, Brooklyn, N.Y. **CIRCLE 250**

► Keep that carpet in line

The PatternLok carpet foundation system, developed to reduce bow and skew, has been upgraded with a modified yarn component. This provides a smooth and consistant foundation for improved pattern integrity and improved tufting definition, enhancing the overall appearance of the finished product. 706/629-7771. SI Flooring Systems, Calhoun, Ga. **CIRCLE 249**





▲ Rays of light

Raydoor is a space dividing system designed to create private environments in both residential and commercial settings without sacrificing natural light. Raydoor offers standard and custom panels that can be used as sliding, swinging, folding, or fixed walls, doors, screens, or partitions. The doors are made from sandwiching a layer of acrylic between two bonded frames, making them both strong and lightweight. In contrast to their delicate appearance, the panels provide sound insulation comparable to that of ¼-inch glass, and work with most available hardware, should security be a priority. 212/421-0641. Raydoor, New York City. **CIRCLE 251**



▲ Good walls make good neighbors

Village Wall II is a system of mobile, flexible office components that can be tethered to patented wall-mounted rails, offering abundant workspace surfaces and display options, as well as full storage capabilities and cable-management. Created by FM Design in London, Village Wall II can be used in small single person offices, meeting and breakout rooms, or in large open floor plans. Modules work against walls or as back-to-back units, saving space and expense in an open plan by providing their own division. 800/543-5848. Tellus Furniture, A Paoli Company, Orleans, Ind. **CIRCLE 252**

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Product Briefs

The 13th annual Montreal International Interior Design Show (SIDIM), held in May, was a rendezvous for design professionals in the commercial and residential interior markets. Here are a few products that stood out for beauty or innovation.



▲ Customizing Canadians

Julia Ray and Salvatore Spatafora, principals at Rai Design, divide their work into three categories: custom residential, mass production, and custom corporate. Custom offerings include a 12-piece outdoor furniture collection featuring a material palette of Brazilian mahogany, cast bronze, and black slate. The mass-produced lines include Corr, Spot, and Sport. The Corr line features layers of corrugated cardboard that are laminated and scored (Corr sofa, above left). Available in black or white, Sport (above right) is a foldable, portable chair that secures belongings in a neoprene zipper pocket. 416/694-5157. Rai Design, Toronto. **CIRCLE 232**

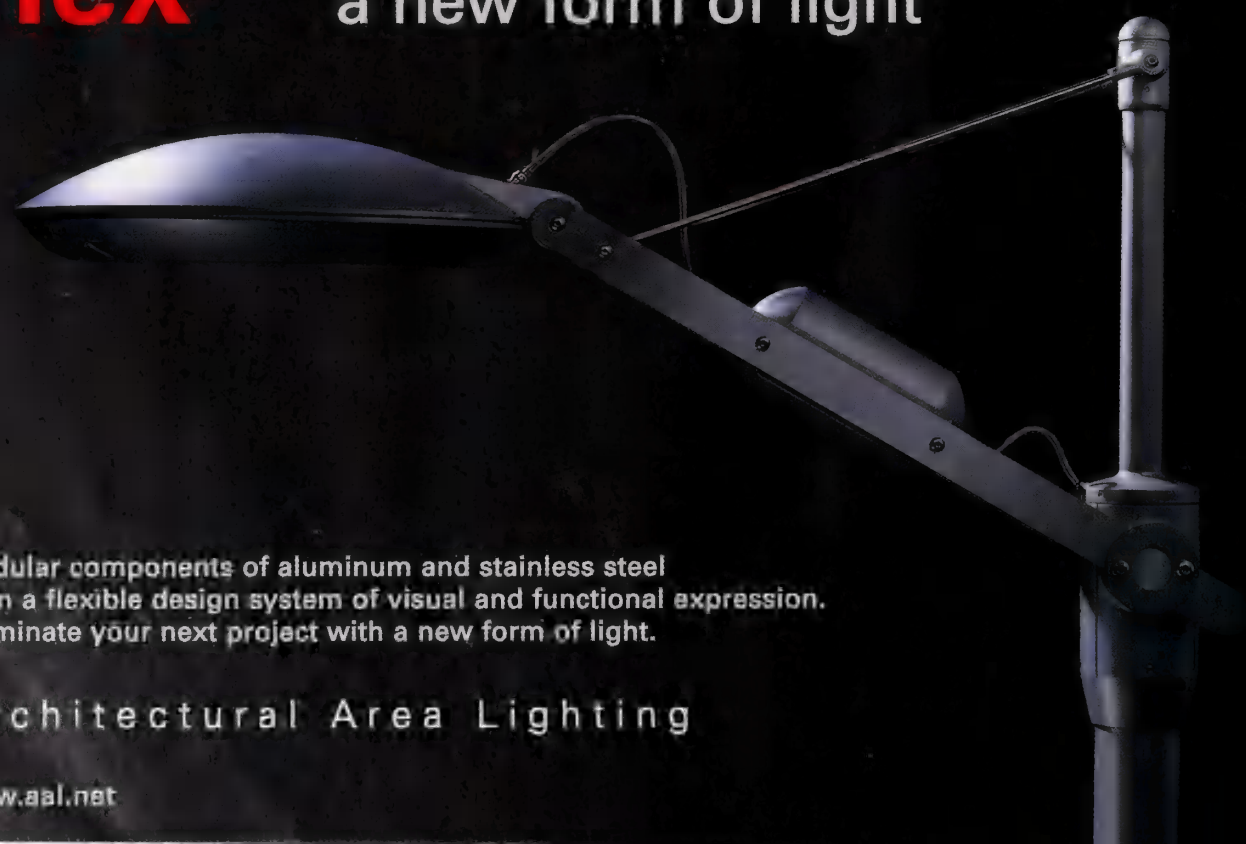
► What's Nu?

The Nu Collection earned first place in the Residential Furnishings category at SIDIM. The modular units are available in various dimensions, and feature rift cut oak veneer in natural, ceruse (shown), or wengé finish. The rectangular bowl can be recessed or installed to overhang towards the front or towards either side of the unit. The mirror opens to either side to reveal a spacious medicine cabinet. 800/921-9508. Vanico Maronyx, Lachenaie, Quebec. **CIRCLE 233**



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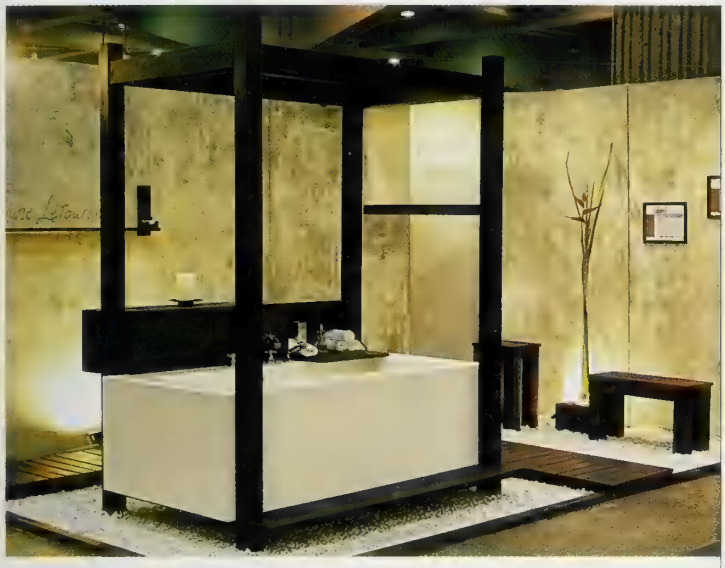


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Product Briefs



▲ Fit for a king

Although this Zen-style tub looks like a podium bath, it does not require any special construction. Made of finished polyester resin, cedar, and translucent blinds, the tub was designed to give more nobility to the bathroom. Elevated six inches above the ground, the tub requires a small stair. Blinds help it convert to a standing shower. 418/262-3652. Dolce Design, Quebec City, Quebec. **CIRCLE 234**

▼ Fits like a glove

The Box stacking chair, designed by Claude Mauffette and Jean-François Jacques, features an anodized aluminum seat and back that are split in half vertically instead of horizontally to create the "cup" shape essential for centering the body and dividing weight evenly. The chair, not yet in production, will come in five colors and has a ⅛-inch tubular steel structure. 514/939-2494. Claude Mauffette Design Industriel, Montreal. **CIRCLE 235**





▲ Far from monotonous

Monotone designer Pedda Jungmann claims his goal is to find the positive aspect of simplicity through a basic palette of wood, metal, stone and glass. His designs include a coffee table of baltic birch, oak, and aluminum, and a room divider (above) of ash and polyethylene. 416/703-9612. Monotone, Toronto. **CIRCLE 236**

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Product Literature

Laboratory casework

A new brochure highlights Fisher Hamilton's full line of stainless steel casework for laboratories and the product's advantages such as rust-free durability, effective sterilization, and long life. 920/793-1121. Fisher Hamilton LLC, Two Rivers, Wis. CIRCLE 237

Lighting systems catalog

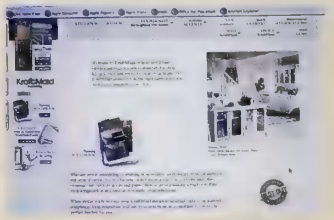
W.A.C. Lighting Company has introduced a new 80-page catalog featuring five track lighting systems, and low- and line-voltage recessed housings and trims, including a new line of Multiple Recessed Spots in both square- and rectangular-shaped housings. 800/526-2588. City of Industry, Calif.
CIRCLE 238

Aluminum glazing systems

EFCO introduces its updated 40-page product catalog. The catalog features photographs of finished projects, from new construction to historical replication, along with detail drawings and product information for the company's complete line of custom architectural windows, curtain walls, entrances, and storefronts. 800/221-4169. EFCO Corporation, Monett, Mo. CIRCLE 239

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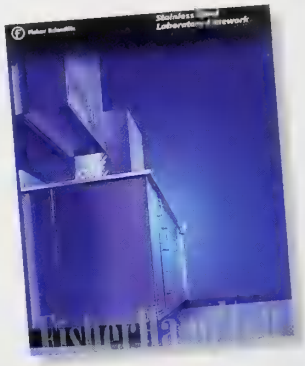
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Green guide

The publishers of *Environmental Building News* have just issued the second edition of *GreenSpec Directory*. This 362-page guide includes detailed information on more than 1,500 carefully screened products, along with generic guideline specification language, all organized in the industry-standard 16-division CSI MasterSpec system. 800/861-0954. BuildingGreen Inc., Brattleboro, Vt.
CIRCLE 240







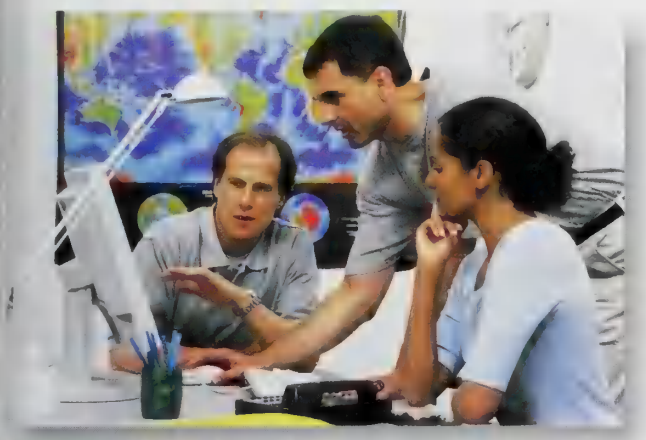


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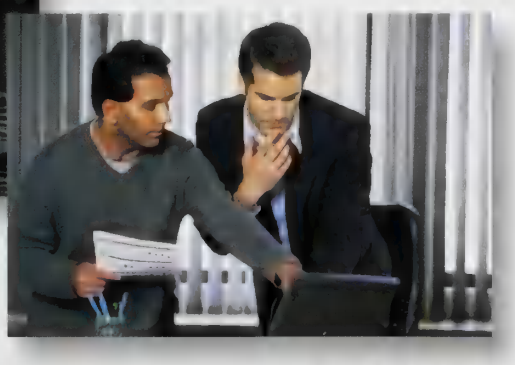
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Product Literature

Raised floor options

The Southern Forest Products Association has published a new brochure explaining the option of building a home with a raised floor foundation. 504/443-4464. Southern Pine Council Kennar, La. **CIRCLE 241**

Door additions

Simpson's free 12-page brochure presents a complete catalog of product photography and product specifications, including images of 35 doors and an assortment of matching sidelights and transoms. 800/952-4057. Simpson Door Company, McCleary, Wash. **CIRCLE 242**

Cabinetry catalog

KraftMaid's new catalog/idea book and new Decorative Molding catalog and idea guide illustrate ideas to personalize kitchens, baths, and other rooms using cabinetry as furniture. The free 96-page catalog and idea book present 71 door style choices and more than 80 room design ideas, separated by wood species. 800/571-1990. Kraftmaid Cabinetry Inc., Middlefield, Ohio. **CIRCLE 243**

Commercial insulation

CertainTeed Corporation is offering a free product guide showcasing its CertaPro commercial insulation line. Ten different types of insulation are discussed including fiber glass batts, board, blanket, and blown-in insulation. 800/723-4866. CertainTeed Corporation, Valley Forge, Pa. **CIRCLE 244**

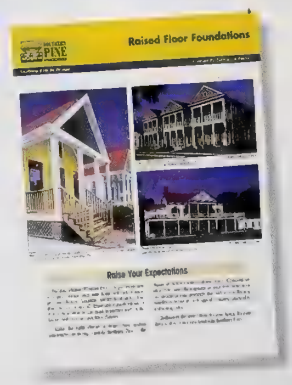
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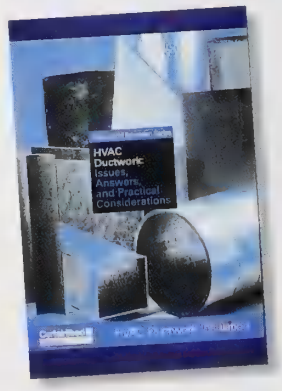
New England Classic announces a collection of to-the-trade CAD design software. These new offerings include the *New England Classic "Classic Design Assistant"* as well as recent upgrades to industry standard design software, *Chief Architect* and *Planit Autograph*. 888/880-6324. New England Classic Inc., Portland, Maine. **CIRCLE 245**

Wind design guide

SPRI, the sheet membrane and component suppliers to the commercial roofing industry, has announced a new version of its "Wind Design Guide for Low-Sloped Flexible Membrane Roofing Systems." Currently revised and updated, SPRI's easy-to-use wind design guide incorporates the most recent data from ASCE-7-98 wind speed tables. 781/444-0242. SPRI, Needham, Mass. **CIRCLE 246**









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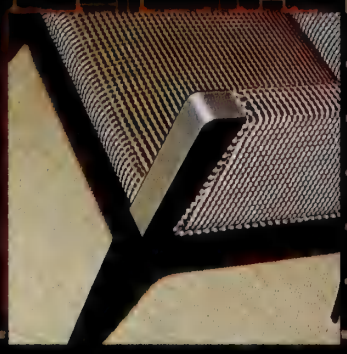
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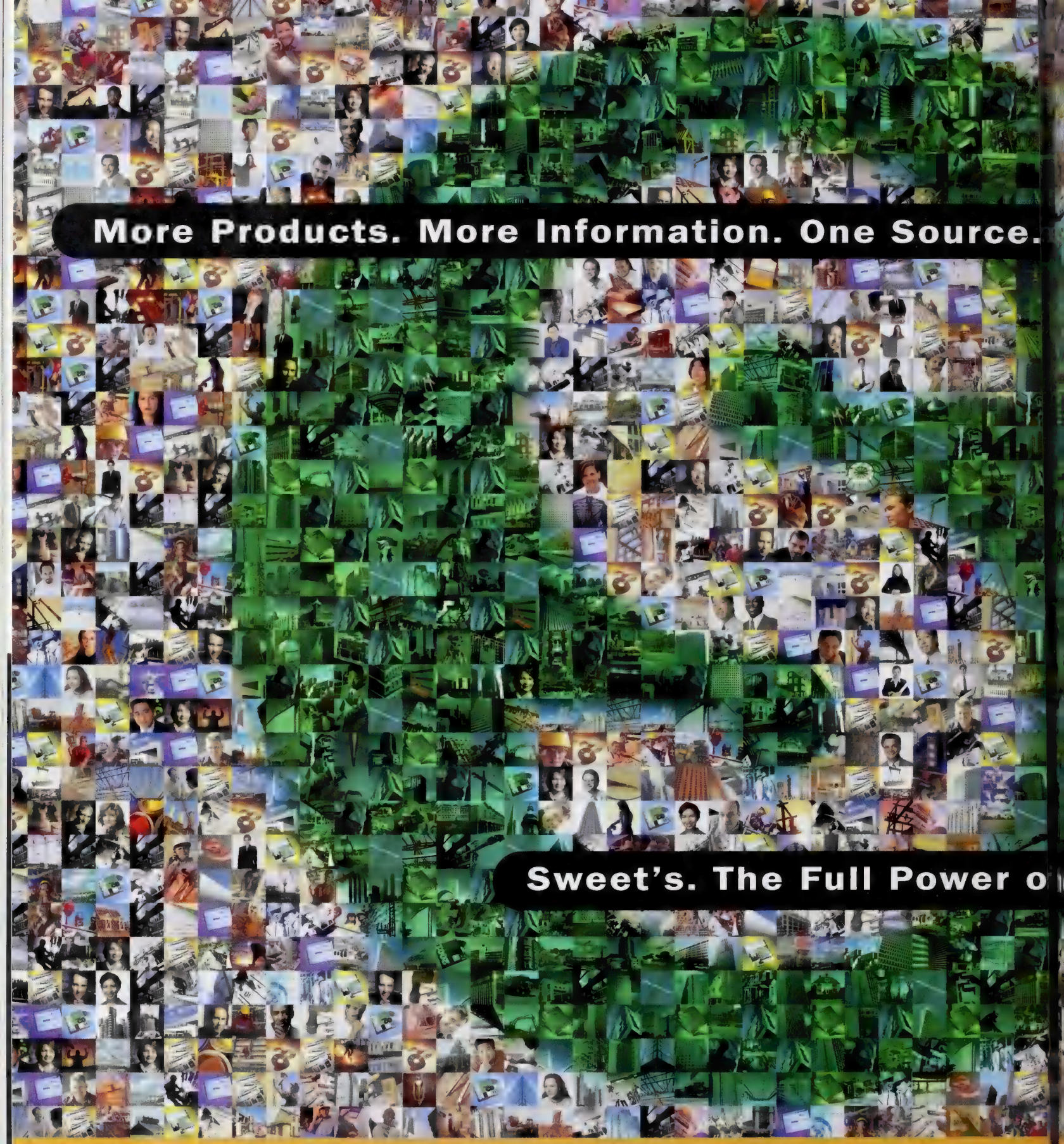
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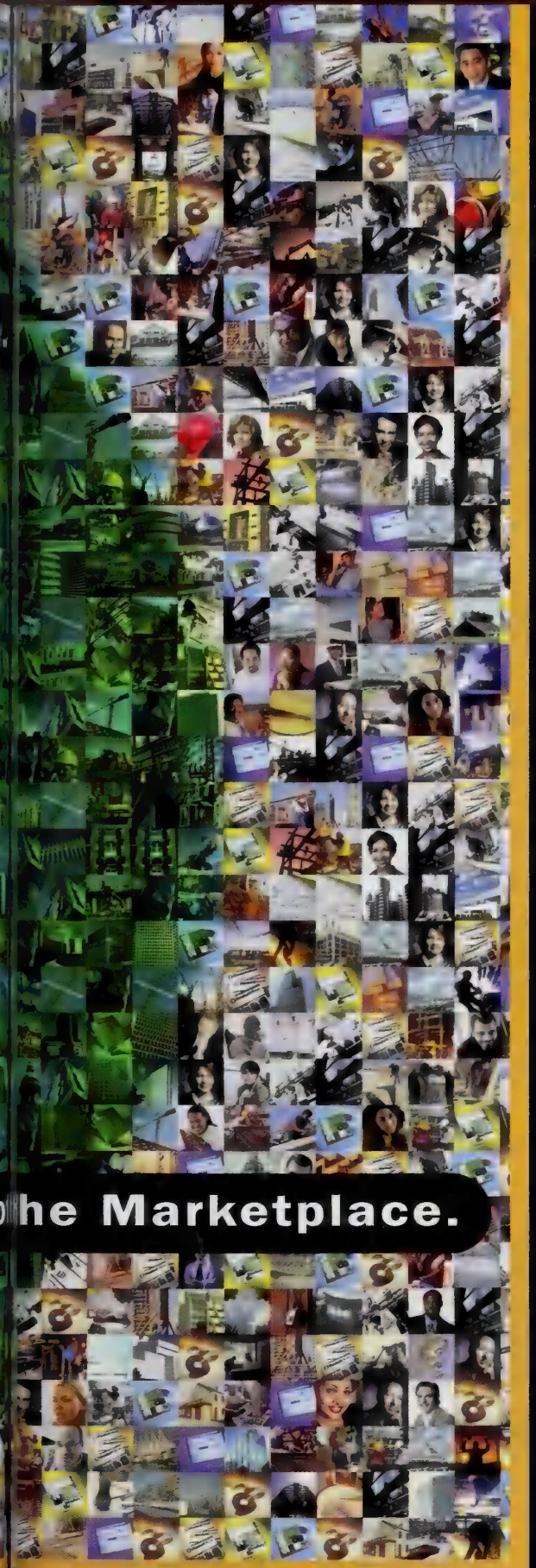
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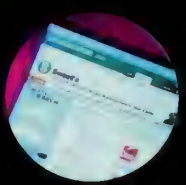
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PAGE NUMBER	READER SERVICE NUMBER	
66	*33*	A/D Fire Protection Systems Inc
221	*85*	Adams Rite Manufacturing Co
188		AIA Contract Documents
208		AIA eClassroom
208		AIA Handbook
26	*12*	AISC/American Inst of Steel Constrn
173	*65*	Alcoa Cladding Systems
162	*60*	Altro Floors
71	*36*	Ann Sacks Tile & Stone
32		Anthro Technology Furniture
236	*97*	Arakawa Hanging Systems
232-233	*93*	Architectural Area Lighting
255		Architectural Record/Recruitment
15, 17		Architecturalrecord.com
252		Architecturalrecord.com/Daily News
2cov-1	*1*	Armstrong
156-157	*57*	Armstrong
196	*73*	Autodessys
81	*41*	Avonite
30-31	*14*	Bentley Systems Inc
169	*63*	BPB Celotex
52	*26*	Bradley Corporation
2-3	*2*	Bruce Commercial Hardwood Floors
203	*74*	Bruck Lighting Systems
56	*28*	Buddy Rhodes Studio
12	*7*	Bulthaup
224		Business Week
191		Business Week/Arch Record
57	*29*	Ceco Door Products
18-19	*9*	Ceilings Plus
88-89	*45*	CENTRIA Architectural Systems
236	*96*	Charles Loomis
6-7	*4*	Confalonieri USA
103	*50*	C/S Group (Acrovyn-System 2000)
105	*51*	C/S Group (Acrovyn-System 2000)
107	*52*	C/S Group (Acrovyn-System 2000)
20	*10*	C/S Group (Entrance Flooring)
234	*94*	DécorCable Innovations LLC
205		Dell
222	*87*	Doug Mockett & Company Inc
74	*39*	DPIC Companies
14		DuPont Corian
35	*15*	Eagle Windows & Doors
78	*40*	EFCO
73	*38*	elliptipar
192	*71*	Equitrac
235	*95*	eZ
222	*86*	Feeney Wire Rope & Rigging
16	*8*	Fisher & Paykel
86	*43*	Follansbee Steel
96	*46*	FW Dodge
226	*90*	Gardco Lighting
220	*84*	Glass Studios Ltd
46	*21*	Gordon Inc
58	*30*	Graphisoft
155	*56*	Hafele
231	*92*	Haws Corporation
165	*61*	Homasote
189	*69*	Hy-Lite Products Inc
37	*16*	IMSA Building Products
214	*78*	InPro Corporation
213	*77*	Interbath Inc
82	*42*	J & J Commercial
48	*23*	John Wiley
9-10	*6*	Johnson Controls
98	*48*	Julius Blum & Co Inc
77		Kawneer Company Inc
208A-B		Keilhauer
45		Kim Lighting
245	*101*	Laticrete International Inc
217	*79*	Maple Flooring Manufacturers Assn
54, 55	*27*	Marlite
50-51	*25*	Marshfield DoorSystems Inc
22-23	*11*	Marvin Windows & Doors
24-25		Masland Contract
209	*75*	McGraw-Hill Professional Books
224		McGraw-Hill Professional Books
207	*105*	MechoShade Systems Inc
220	*83*	Mortar Net
223	*88*	Nathan Allan Glass Studios Inc
49	*24*	National Gypsum Company
96A-H		National Terrazzo & Mosaic Assn
194	*72*	NECA/IBEW NLMCC
3cov	*102*	Nemetschek North America
237		NeoCon 2001
190	*70*	Newmat USA Ltd
167	*62*	Odegard
158-159	*58*	Owens Corning
225	*89*	Pawling
72	*37*	Pemko
218	*81*	Polygal
68	*35*	Pozzi Wood Windows
199		Revit Technology Corporation
28-29	*13*	Ricoh
243	*100*	SBCCI/Southern Bldg Code Cong Intl
210	*76*	Schott Corporation
218	*80*	Seiho International Inc
47	*22*	Sherwin-Williams
180	*104*	Sloan Valve Company
181-185	*67*	Sloan Valve Company (CE Section)
63	*31*	Smart Technologies Inc
112	*55*	Solutia
171	*64*	Sony Electronics Inc
186-187	*68*	StarNet
4, 5	*3*	Steelcase
67	*34*	Style Solutions
238-239	*98*	Sweet's
160-161	*59*	Technical Glass Products
219	*82*	Temple
87	*44*	Timely
229	*91*	Truebro
110-111	*54*	Trus Joist
175-179	*66*	USG Corporation (CE Section)
61		USG Corporation (Ceiling Systems)
174		USG Corporation (Levelrock™)
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41	*18*	Vistawall Architectural Products
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Answers to Continuing Education Questions from Page 179

1. Gypsum concrete underlayments are lightweight, high-strength products that that apply quickly and cost-effectively. They can be used in commercial, institutional, residential and renovation applications. For renovation applications, they are an ideal leveling or resurfacing material and can be applied from featheredge to 3-inch thicknesses. Gypsum concrete underlayments bond strongly and require minimal surface preparation, while delivering excellent sound control properties and fire resistance. The products set quickly, allowing foot traffic within two hours and continued construction activities the next day. They can withstand heavy construction without powdering, dusting, chipping or cracking.

2. The most important consideration when specifying gypsum concrete underlayments is to select a product that meets or exceeds minimum compressive strength requirements. Due to variables in raw materials and design mix, it is advisable to specifiy a higher-strength product rather than one that just meets minimum requirements. Specifiers should also insist on working only with licensed and trained gypsum concrete underlayment applicators. The building interior must be enclosed and a temperature of at least 50 degrees F must be maintained during and after installation. For full application thicknesses, gypsum concrete underlayments should be applied a minimum 3/4 inch thick over wood framing and typically 3/8 inch to 1/2 inch thick over plank or poured-in-place concrete. After the floor has dried, it should be sealed using a manufacturer-approved sealer to minimize dusting when glued-down floor finishes will be applied.

3. On-site design mix is a key consideration because it can impact gypsum concrete underlayment performance and application. High-performance gypsum concrete underlayments utilize low-water-demand gypsum cement formulations. When these products are overwatered, the floor strength diminishes significantly. Overwatering also frequently produces a chalky surface film that negatively impacts the adhesion of glued-down floor finishes. Another consideration is the quantity and quality of sand that is added to the mix. Oversanding, like overwatering, diminishes the strength of the floor. Likewise, the type of sand used impacts performance. A clean, sharp, properly graded sand aggregate (per ASTM C33), commonly referred to as plaster or masonry sand, is recommended for most applications.

4. Poured gypsum underlayment is ideal for multifamily housing for several reasons. First, it provides excellent fire resistance. Gypsum concrete underlayment assemblies offer UL-certified fire ratings up to two hours. Second, poured gypsum is excellent for sound control since it fills cracks and joints as it is poured, stopping a major source of sound transmission. Third, poured gypsum concrete underlayment is thin and lightweight. Finally, the underlayment accepts almost any type of finished floor covering, including vinyl composition tile, ceramic tile, wood laminate, glued-down hardwood and carpeting.

5. Gypsum concrete underlayment has many benefits compared to portland cement-based products. A gypsum floor underlayment is usually ready for the application of finish materials within five to seven days. Portland cement products require at least 30 days before floor finish materials can be applied. They also shrink as they dry, which can result in cracks. Gypsum concrete underlayment does not crack, and effectively fills cracks and joints in the existing floor surface. Poured gypsum concrete underlayment also requires minimal surface preparation and can be applied from featheredge to 3-inch thicknesses. Up to 30,000 sq. ft. of gypsum concrete underlayment (3/4 inch thick) can be applied in a single day.

SENSOR TECHNOLOGY BRINGS INNOVATIVE SOLUTIONS TO BATHROOM DESIGN

Using Electronic Plumbing Products to Enhance Public Restroom Facilities.

Sponsored by Sloan Valve Company

Answers to Continuing Education Questions from Page 185

1. The most important reason for using plumbing sensors is to keep a restroom hygenic. When people touch a faucet to turn it on, bacteria and communicable diseases can be spread to other people who also touch it. Installing touch free faucets and flush valves with sensors to turn them on greatly reduces the transmission of bacteria and disease.

2. Odors in restrooms often are the result of toilets or urinals not being flushed after use. Sensor flushing devices flush the waste after each use, thereby eliminating standing urine and waste in the plumbing fixture and their odors.

3. When plumbing sensors are installed on faucets, the water runs only as long as the sensor light is reflected back to the sensor. Once the hands are removed from the faucet area the water turns off. In high use areas this reduces a lot of water being used while people are reaching for soap, scrubbing their hands, or reaching for paper towels. To keep overruns from occuring by the sensor not turning off, a maximum run time should be incorporated into the faucet.

4. Battery operated sensor valves and faucets allow for easier and more cost effective installation. They are most appropriate when the building must be retrofit, battery changing maintenance is easy to address, and when the use is light to moderate such as in an office building or restaurant. Hard wired sensors require the work of both an electrician and a plumber. They are best for high use, multiple fixture, new settings where they can be wired once with little maintenance, such as a stadium or airport.

5. The cause of most problems with sensor plumbing products identified by the manufacturers is poor installation. Although the installation is not difficult, it is different from manually operated devices. They must be installed and adjusted according to the manufacturers requirements. A problem that can occur with sensor products is interference from high intensity lights. This is controlled by specifying blocking electronic circuits. Another problem could be physical abuse or vandalism. People will try to turn a knob on a faucet to turn it on. Therefore faucets need to be secure on the sink and should have an anti-rotation device. Faucets also need a maximum run time to prevent vandals from blocking the sensor shut off. Timing delays should be incorporated into the sensor circuitry to help prevent false flushing from movement in a toilet stall.

6. ADA guidelines dictate the amount of force required to activate a faucet or flush value, and have strict definitions for the size, positioning and design of plumbing products and their activators. Sensor plumbing products meet these ADA requirements for handicapped users. Since they are also designed for other users, a single product meets the needs of the full user population, eliminating the need for different products for each segment of the population.

the perks of membership

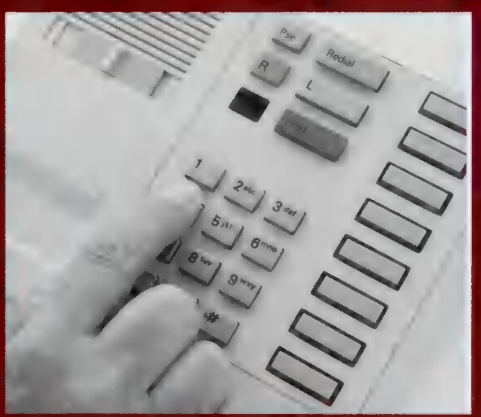
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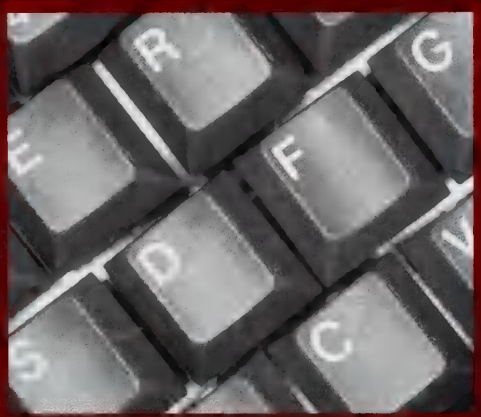
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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS TO: "PUBLIC MUSINGS ON ACOUSTICAL PRIVACY"

Questions appear on page 172. To receive CES credits, fill in the education reporting form below or on our Web site (www.architecturalrecord.com).

1. "A" is for absorbing mid-range frequency sounds by using a ceiling system with a satisfactory noise reduction coefficient (NRC) to prevent speech from bouncing off the ceiling from one cubicle to another. "B" is for blocking sound by using partitions of sufficient height and sound transmission class (STC) to block speech, preventing direct passage of sound into adjacent workstations. "C" is for covering unwanted sound by using sound masking to decrease the signal-to-noise ratio.

2. For acoustical privacy, partitions should be higher than the head height of personnel sitting or standing in adjacent workstations. However, lower partitions may be required for visibility and to enable communication among individuals engaged in collaborative work. Ultimately, though, workers need to direct their voices into acoustical panels when possible so that the panels can absorb sound effectively.

3. The ceiling is the largest surface in an open office, so it plays an important role both visually and acoustically. A high NRC is required both to reduce ambient noise levels and to enhance speech privacy by preventing sound from reflecting from one cubicle to an adjacent one. Aesthetically, designers are exploring new dimensions and configurations to avoid the monotony of a large, flat, 2 x 4-foot grid.

4. While the whoosh of air from an air distribution system can contribute background noise for sound masking, increased reliance on variable volume air distribution systems means that supplemental sound masking systems may be required for times when the air distribution system is shut off. High-pitched hissing sounds or the opening or closing of valves can also be distracting; locating ductwork above a suspended ceiling can help distribute any noise, lessening its potential to become a distraction. Ductwork entering enclosed rooms needs to be treated to prevent the transmission of speech from one side of a wall to the other.

5. Many designers have begun to use perforated metal panels in open-plan offices because they can be fabricated in a wide range of shapes and configurations, which increase ceiling design options. Although metal panels don't block sound, new non-woven fabric insulations make it simpler to install acoustical insulation in a metal panel. Using these two materials in combination can lead to satisfactory acoustical performance in large, open spaces.

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☐ "Public Musings On Acoustical Privacy" [page 163]
☐ "Gypsum Floor Underlayments Are Stronger Than Ever" [page 175]. Section sponsored by USG.
☐ "Sensor Technology Brings Innovative Solutions To Bathroom Design" [page 181]. Section sponsored by Sloan Valve Company.

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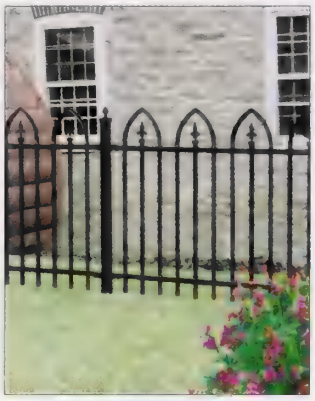


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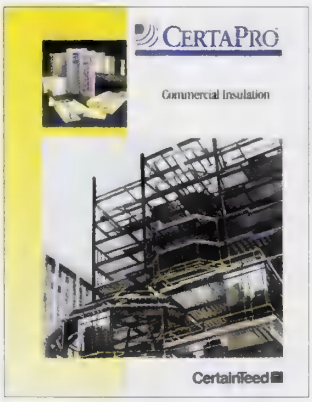


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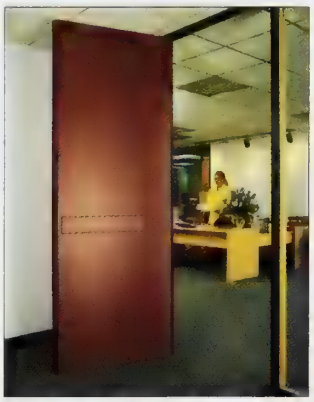


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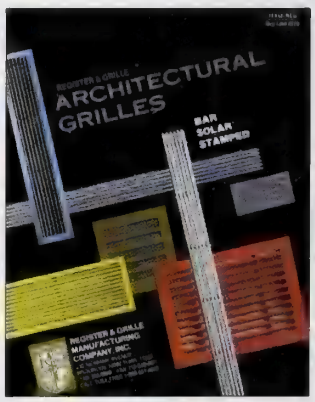


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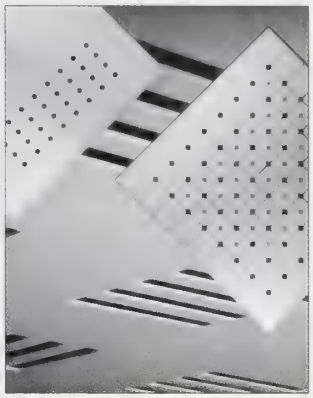


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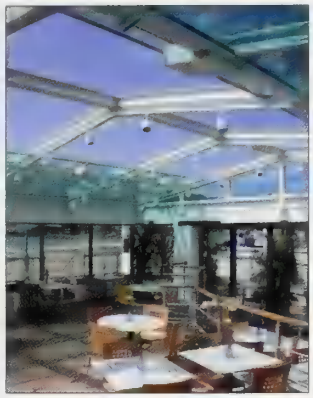


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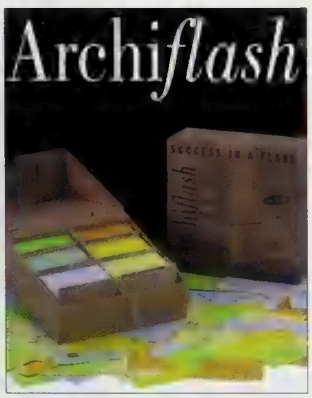


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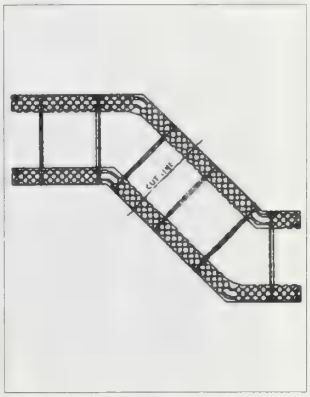


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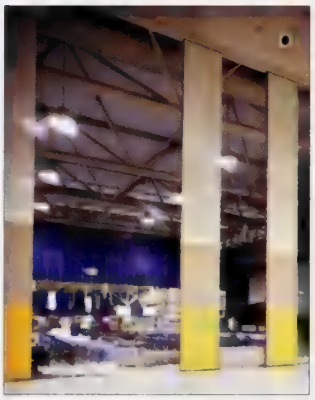


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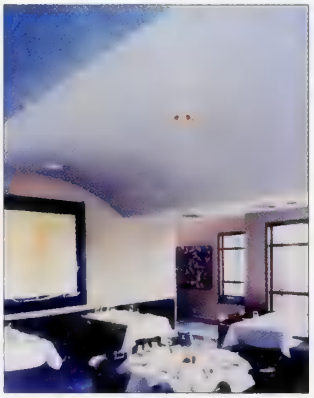


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Garaventa Genesis Vertical Platform Lift

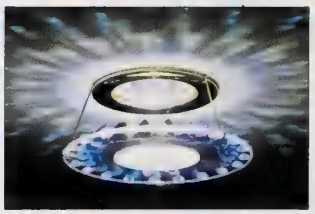


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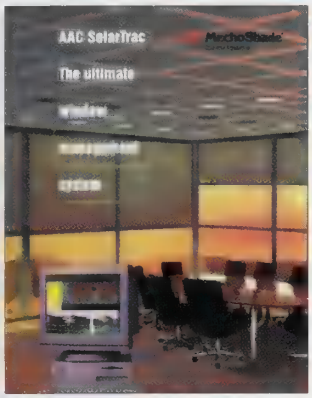
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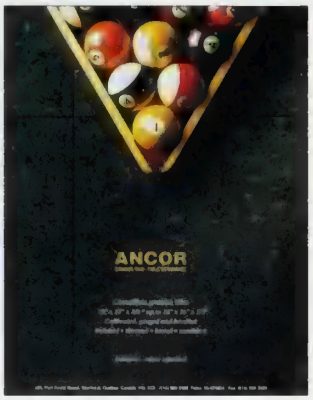


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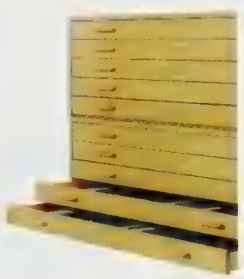


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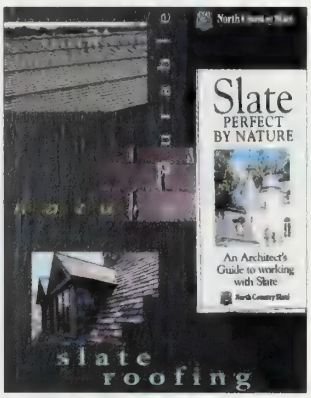


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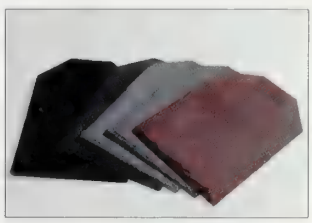


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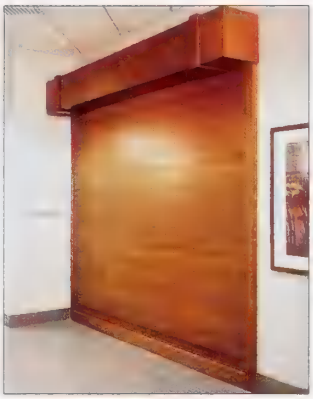


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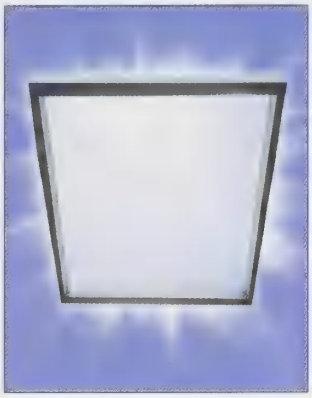


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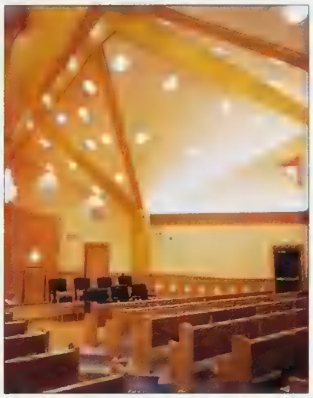


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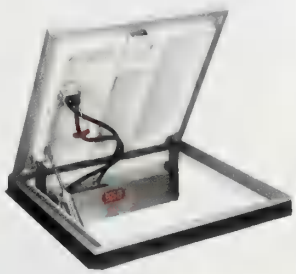


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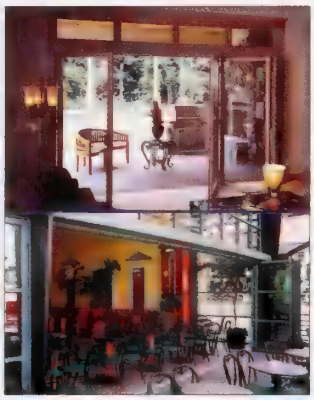


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The Department of Architecture at MIT announces a search for one tenure-track position in architectural design at the level of assistant or associate professor. Evolving with a strong humanist bias and an ethos of entrepreneurialism, MIT's department of Architecture is explicitly committed to excellence in both pedagogical and research activities. Believing that the cross-current between the two creates a charged atmosphere for study and a critical edge for research, we are seeking candidates with an ability to thrive within this context. Primary criteria for the position are proven excellence in the teaching of design studios and strong promise of significant creative achievement in the field through the application of computer methodologies to design research, theoretical practice, professional practice, or a combination thereof. We seek candidates who can demonstrate an ability to work at the forefront of this research and to advance such inquiry within the department - especially within the studio sequence. Also desirable is the ability to link this area of inquiry with other areas of research within the department, such as sustainability, material innovation and assemblies, or contemporary theory. We also expect the character and energy to participate in the intellectual life of the department, readiness to teach at all levels of the studio program, and the aptitude to participate in research programs that engage colleagues and students at both the professional and post-professional degree levels. Initial screening will be conducted on the basis of: letter of interest that includes a list of possible references, curriculum vitae, and a ten page non-returnable portfolio of design work. We will begin reviewing applications in early December and continue until the position is filled. Please send all materials to: Chair, Design Search Committee, Department of Architecture, Room 10-491M, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139, Fax: 617-253-9407. MIT is an equal opportunity/affirmative action institution. Women and minority candidates are strongly encouraged to apply.

UNIVERSITY OF OREGON
DEPARTMENT OF ARCHITECTURE

The Department of Architecture at the University of Oregon seeks thoughtful, skillful, and effective faculty members for a number of positions ranging from post-graduate fellow to distinguished professor. Successful applicants must be able to demonstrate the promise of effective and inspiring teaching in architectural design studios and specific subject area courses. Fellowship in Architectural Design + Structures: The Department is seeking post-graduate and/or professional candidates with an interest in developing a career in teaching. The design fellowship offers the opportunity to gain experience in studio instruction and to develop an area of subject course specialization. This year the search for fellows will focus on candidates who wish to address the synthesis of structure and architecture and have a strong interest in helping students learn to integrate structural principles into architectural design. Expectations include co-teaching one or two of the large enrollment, required structures courses, design studios, and one exploratory elective, with a total of four course assignments distributed over three ten week terms. In addition, fellows are expected to pursue a program of research, scholarship or creative practice which, with the advice and mentoring of senior faculty, can become the foundation of a sustained inquiry into emerging issues in the field.Fellows are expected to spend one year in residence at the University of Oregon. Architectural Design + Structures: The Department is seeking candidates for a tenure-track position in architectural design and structures who address the synthesis of structure and architecture in their teaching, research and/or creative work and have a strong interest in helping students learn to integrate structural principals into architectural design. Candidates are expected to have well-defined research, scholarship, or creative practice interests with a commitment to sustained inquiry into emerging issues in the field.They must be proficient at nurturing creative inquiry by students, promoting integrative design exploration in both subject area classes and studios. This position involves teaching required courses in the one-year structures sequence and architectural design studios at the graduate and undergraduate levels.The normal teaching load will be five courses per academic year, distributed over three 10-week terms.Expectations for this position includes co-teaching one or two of the required structures courses each year, design studios, and the opportunity for one advanced elective as part of the annual, five course rotation. In addition to these appointments, we are seeking a pool of applicants for two one-term distinguished visiting professor positions: Frederick Charles Baker Chair in Architectural Design.The Baker Chair is an endowed chair with a special focus on the study of light and lighting as a phenomenon in architectural design. Pietro Belluschi Distinguished Visiting Professor in Architectural Design.Belluschi professors are prominent architects and architectural educators who will bring true distinction and unique opportunities to the University of Oregon. Qualifications: 1. For all positions, an accredited Master of Architecture degree is required, or a B.Arch and graduate degree in an associated discipline. 2. Fellows and tenure-track candidates must demonstrate the potential to engage integrative research, scholarship and/or creative work, and disseminate the results. 3. For tenure-track and senior positions, previous teaching experience is desired. 4. Professional experience in architecture or a related field is an asset. Application process: Full descriptions of the individual positions, and the specific application requirements for each, can be obtained by visiting our web site: (http://architecture.uoregon.edu/people). Review of applications for the fellowship and tenure track positions will begin November 1, 2001 and continue until the best available candidates are identified. Appointments to the distinguished professorships are made from a continuing pool of candidates, with an annual review of that pool which begins on November 1. Interested parties are urged to contact the department as soon as possible. Complete applications and /or inquiries should be addressed to: Nancy McNaught, Office Manager, Faculty Search Committee, Department of Architecture, School of Architecture and Allied Arts, University of Oregon Eugene, Oregon 97403-1206, tel: 541-346-1435; fax: 541-346-3626; e-mail: mcnaught@darkwing.uoregon.edu The University of Oregon is an equal opportunity, affirmative action institution committed to cultural diversity and compliance with the Americans with Disabilities Act. Women and minorities are encouraged to apply.

DEAN
SCHOOL OF ARCHITECTURE
UNIVERSITY OF ARKANSAS, FAYETTEVILLE

The Position: The School of Architecture is seeking a scholar or leading professional of national stature in architecture or landscape architecture for Dean at the University of Arkansas, Fayetteville. The School: The School of Architecture houses the state's only accredited five-year professional programs. The school awards a Bachelor of Architecture, a Bachelor of Landscape Architecture, and a non-accredited four-year Bachelor of Science in Architectural Studies. Each student in the Department of Architecture is required to complete an in-residence study program in either Rome or Mexico City. Students of Landscape Architecture are required to participate in the department's program in Bath, England. Responsibilities include administration of four units: the Architecture Department, the Landscape Architecture Department, the Garvan Woodland Gardens, and the University of Arkansas Community Design Center. The School has approximately 300 students, 27 full or part-time faculty, and 14 staff. The Dean serves in the capacity of oversight of the four units and reports to the Provost of the University. The Dean of Architecture sits as a non-voting member of the State Board of Architects and is on the State Board of the Architecture Association. Desired Attributes: Awareness of the profession and vision for its future; Ability to cultivate innovation and excellence in teaching, scholarship, research and creative work; A commitment to shared decision-making and team building within a multidisciplinary environment; A proven capacity for effective teaching and academic administration; A nationally recognized record of accomplishment in scholarship, research, and practice in the field of architecture; Willingness to participate in the University's forthcoming capital campaign; A commitment to external relations. Qualifications: Candidates should hold a terminal degree in architecture or landscape architecture or a related field and must be qualified for tenure; Candidates must be a registered architect or landscape architect. University and Community: Established in 1871, the University's vision is to be a nationally competitive, student-centered research university serving Arkansas and the world. Fayetteville is located in the northwest corner of Arkansas, among the rivers, plateaus, and valleys of the Ozark Mountains. The city has a population of 60,000, including 15,000 students. The Northwest Arkansas region, which has a strong economy and is growing steadily, has 350,000 inhabitants and is home to several major national and international businesses. Little Rock, Tulsa, Dallas, Kansas City, and St. Louis are within a six-hour drive or less. To become a candidate, please submit a letter of application expressing your interest and view of this position, including a statement of your educational philosophy and how you envision the role of dean. Also send a curriculum vitae and the names, addresses and telephone numbers of five references to: Dean Randall B. Woods, Fulbright College of Arts and Sciences, 525 Old Main, University of Arkansas, Fayetteville, AR 72701. Consideration of applications will begin on September 30, 2001; however, applications will be considered until the position is filled. The appointment will begin July 1, 2002. The University of Arkansas is an Affirmative Action/ Equal Opportunity Employer and applications will be accepted without regard to age, race, color, sex, or national origin. Applicants must have proof of legal authority to work in the United States.



Pascale Girardin: Ceramics and the city

Interviewed by Ingrid Whitehead

The work of ceramic artist Pascale Girardin shows up again and again in the fabric of Montreal's commercial interiors. Handmade dishware, lighting, installations, accessories, wall tiles, and porcelain curtains are some of the elements that architects and interior designers (such as Canadian designer Jean-Pierre Viau) have discovered add a certain "je ne sais quoi" to their designs. After winning several Canadian art awards and grants, Girardin is now branching out from her native Montreal: You can eat off her dishware at the Japanese restaurant Nobu in New York and Las Vegas or pick up a set at Manhattan's upscale housewares shop Felissimo. She spoke to RECORD *from her Montreal studio.*

Q: *What is it about working with clay that appeals to you?* Clay can be shaped into simple, irregular organic forms which require the viewer to be still and attentive. As long as my mind can't fully get around a shape, I'm satisfied. Clay allows me that. I try not to be too attached to the end result, but the creative process. I can't be that attached; after all, 20 to 25% of the work is lost—warped, cracked, or ruined by firing problems. You learn to accept that and not put so much into how the pieces end up.

What brought you to ceramics in the first place? I thought I'd become a mycologist, as I was interested in biology. I also painted for 13 years, and played classical guitar. But after taking a course in pottery I never looked back. Also, I was highly influenced by Quebec artisans such as Maurice Savoie, Jean Cartier, and Jordi Bonet.

How do you collaborate with architects? What are the architects looking for when they come to you? The architects and interior designers I've been working with are looking for unusual textures or forms to integrate with their designs. For example, the project I'm working on now with Jean-Pierre Viau incorporates 15,000 suspended clay elements strung on 300 strings. These will act as curtains for four windows that are 10 feet high and 9 feet wide. It's for a restaurant called Lychee. It's time-consuming work, and very much a craft. When it's finished, the work will not impose itself on the design, but will quietly give the room warmth and softness. I've also created room separators for Quadrangle Architects in Toronto, for the Grey Advertising offices there.

As a craftsperson, what scale do you prefer to work in? It's an evolution. Right now my vision includes working with architects to create larger-scale projects. I'd love to do a fountain. I love exploring the boundaries and the possibilities; redefining the limits of the material.

What about functional objects vs. art? Everything has a function, so I don't think art falls in a separate category.

Clay, as a material seems so vulnerable, and so subject to your will. Do you see it as such? My approach to clay is like any other creative endeavor—I use what I know but count on chance, accidents, and mishaps to redirect me. There is a certain flexibility that is necessary to working with the material. Although, I do have a sense of certainty when I work. It's a feeling of confidence that I will make, within the boundaries given to me, something completely one-of-a-kind and authentic.

Photograph by Frédéric Le Paumier

For more information about Girardin and her work, go to allshookup.com/girardin

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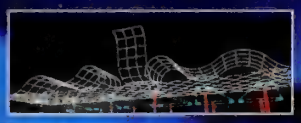
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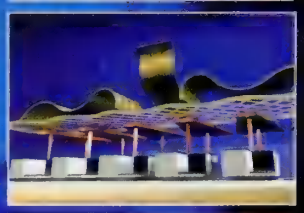
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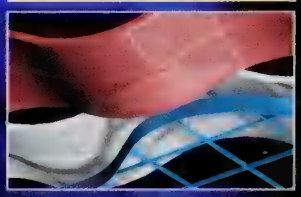
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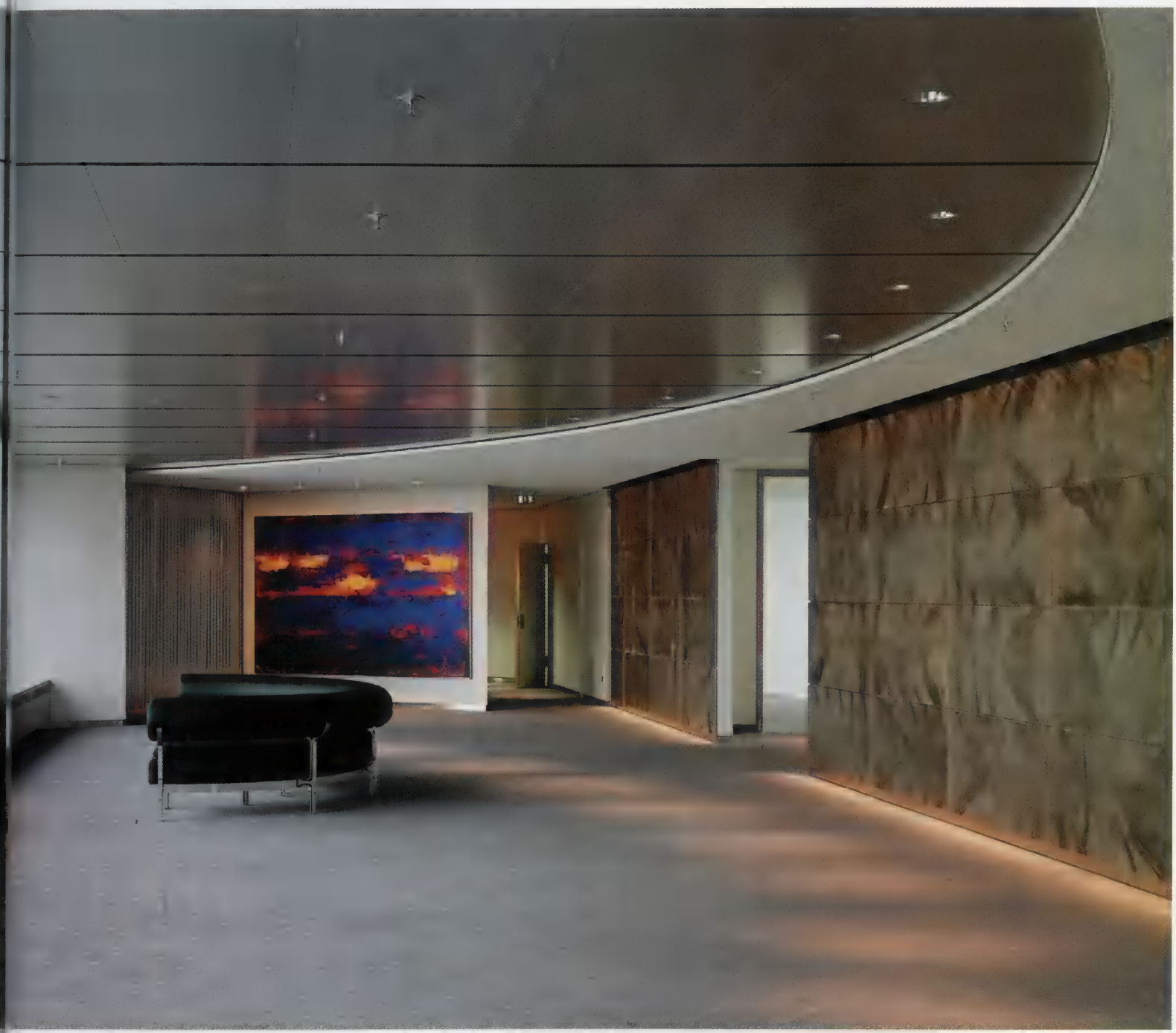
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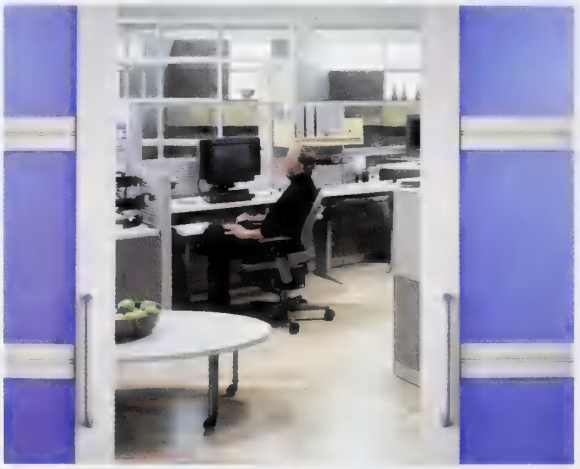
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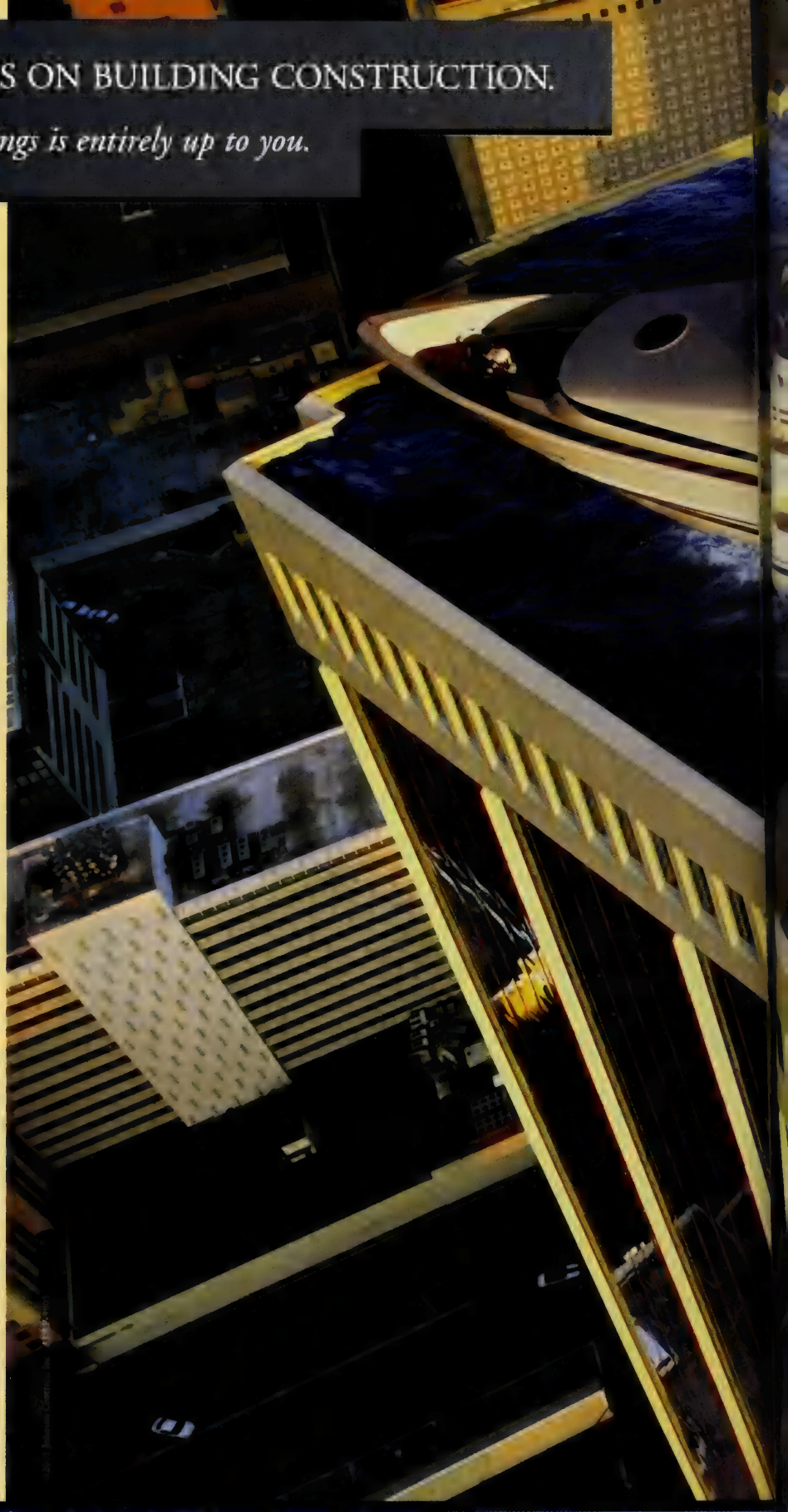
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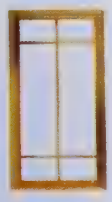
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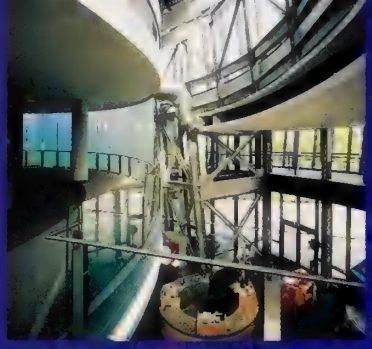
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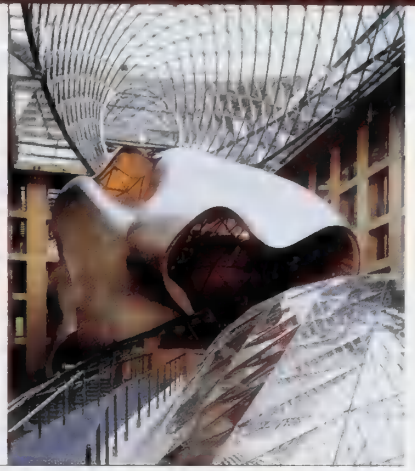
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Right: *DG Bank, Photograph by Roland Halbe* ►

Special News Section

22 SPECIAL REPORT: **World Trade Center succumbs to terrorism**

34 WTC PHOTO ESSAY: **Lanterns and Lightcatchers**

WWW For continuous updates on the developing story at the World Trade Center, go to ***www.architecturalrecord.com***.

Departments

21 Editorial: **Shaking off the terror***

56 **Letters***

63 Dates & Events*

71 Archrecord2: **For the emerging architect***

75 Correspondent's File: **Chicago housing** *by Rosemarie Buchanan*

79 Critique: **Deciphering ArchiSpeak** *by Robert Campbell, FAIA*

83 Snapshot: **A hand-built Bolivian church** *by Jane F. Kolleeny*

268 Profile: **F. Joseph Moravec** *by Ingrid Whitehead**

Features

90 **Business Week/Architectural Record Awards**
The winners of the fifth annual awards prove once again that good design can be equated with good business.

Projects

120 **DG Bank, *Berlin, Germany*** *by James S. Russell, AIA**
Gehry Partners Architects
A sedate facade conceals an astonishing "horse's head" conference room on the interior of this Berlin bank headquarters.

132 **Aurora Place, *Sydney, Australia*** *by Lisa Findley*
Renzo Piano Building Workshop
A glass curtainwall sail curves around an office tower that is part of a soaring new mixed-use project.

140 **Rohner Office Building, *Fussach, Austria*** *by S.A. Miller*
Baumschlager & Eberle
An entirely cantilevered structure that conveys at once absurdity and exquisite balance.

Building Types Study 802

147 **Essay: Places of Worship** *by Winifred Gallagher*

150 **North Shore Synagogue, *New York*** *by Michael J. Crosbie**
Alexander Gorlin Architects

154 **St. Peters by the Sea, *Mississippi*** *by Christine Kreyling**
Errol Barron and Michael Toups Architects

158 **Santa Maria de las Brisas, *Chile*** *by David Dillon**
Fernando Domeyko Pérez

162 **White Temple, *Kyoto, Japan*** *by Naomi R. Pollock, AIA**
Takashi Yamaguchi and Associates

For 10 additional places of worship, go to Building Types Study at ***www.architecturalrecord.com***. The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

Building Science & Technology

175 **Dynamic Concrete in the 21st Century**
*by Sara Hart**
Three new projects illustrate the world's oldest building material.

185 **Digital Architect: Headline here** *by Jerry Laiserin, FAIA**

Residential

207 **Introduction**

209 **Residential News**

210 **Butterfly House** *by John Peter Radulski*
Godfredsen Sigal Architects

216 **Villa KBWW** *by Tracy Mets*
De Architectengroep and MVRDV

220 **Phillips House** *by William Weathersby, Jr.*
Frederick Phillips and Associates

225 **The Yardbird** *by Elizabeth Harrison Kubany*
Frederick Phillips and Associates

227 **Residential Products**

Products

231 **Special Construction**

237 **Product Briefs**

246 **Product Literature**

16 **What's on our site**

242 **Record Houses 2002**

266 **Classified Advertising***

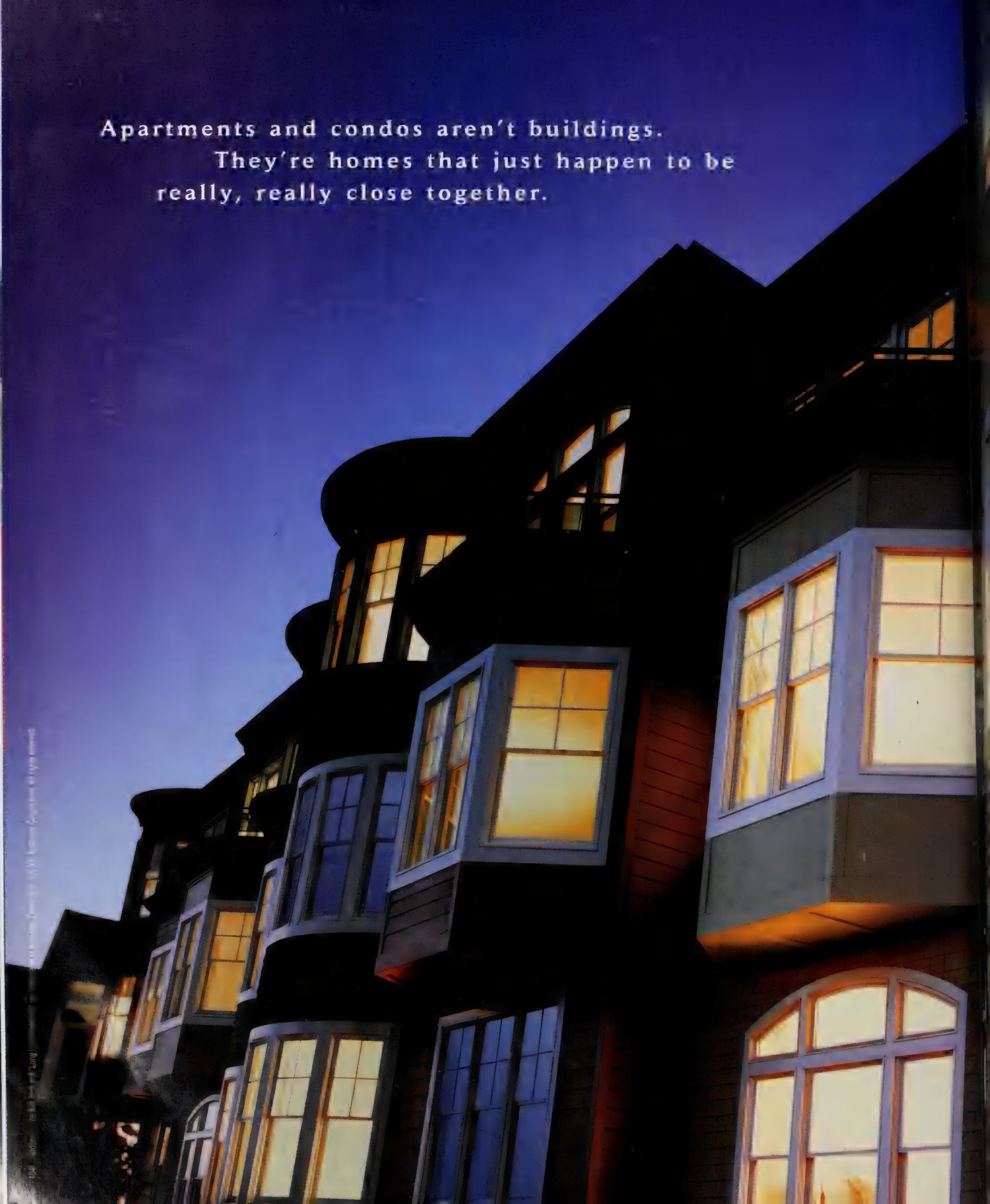
256 **Reader Service***

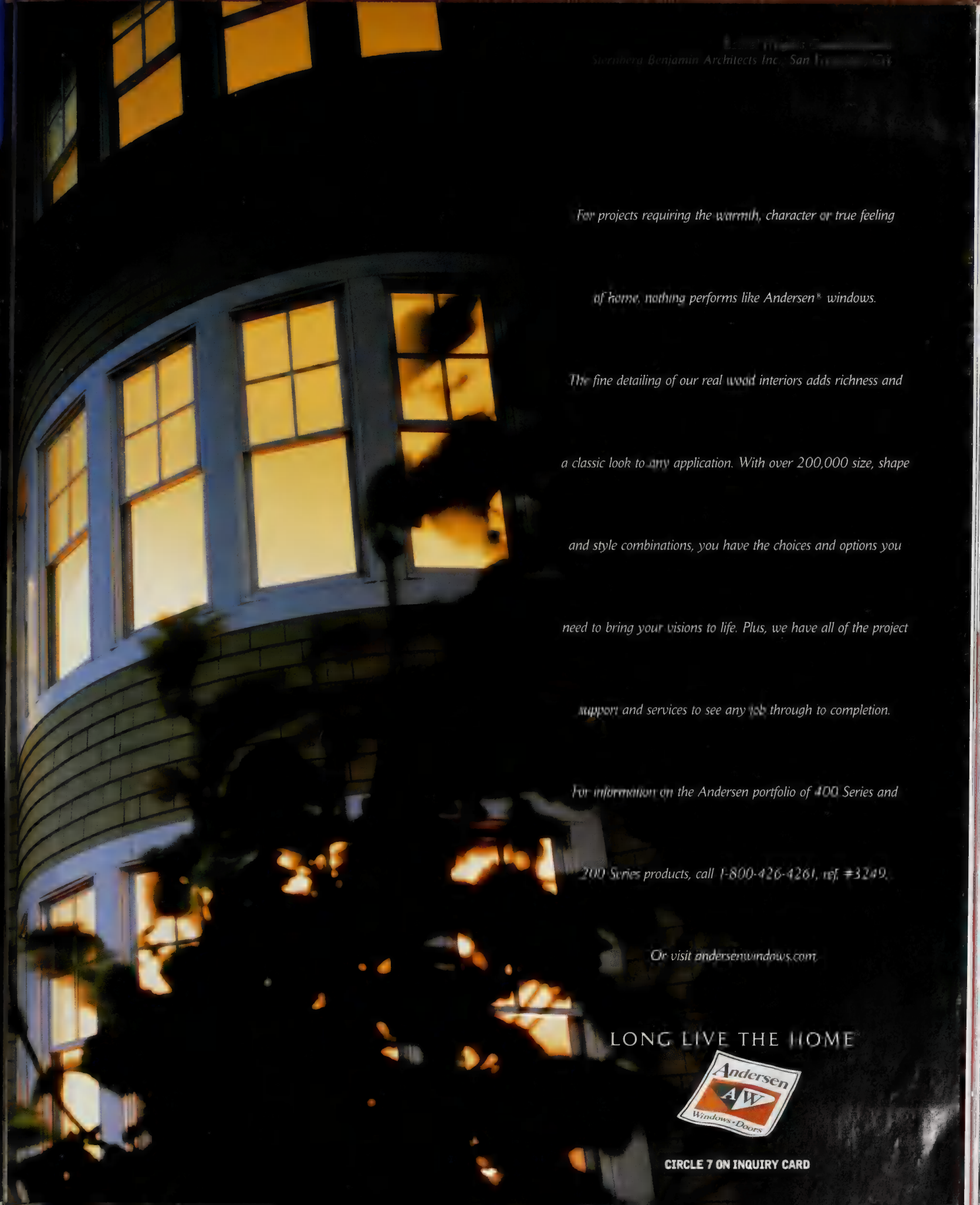
260 **Manufacturers' Spotlight**

258 **AIA/CES Self-Report Form***

The AIA/ARCHITECTURAL RECORD Continuing-Education Opportunities *are* **"Dynamic Concrete in the 21st Century"** *[page 175]*, **"Wood Windows: New Standards, New Looks."** *[page 191] sponsord by Jeld-Wen and* **"A Specification Guide for Exterior Wall Sheathings"** *[page 197] sponsord by USG*

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home

Visit Web-only BTS Projects: Places of Worship



Photography: Alan Karchmer | Photography: Takashi Yamaguchi and Associates

Check out October's **Expanded Building Types Study** section for a portfolio of web-only **Places of Worship** in addition to the BTS projects in the issue. Get project descriptions, plans, specs, photos and links to people and products involved. Starting with the January 2001 issue, every month's BTS has additional projects on the web.

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DESIGN Projects by and profile of The Office of Mobile Design. **WORK** Apurva Parikh, designer of the Science Education Building at the Tulare Campus Center. **TALK** Share your thoughts and opinions on the future of cities and the World Trade Center and Pentagon disasters.

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Project Portfolio



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See **Frank Gehry's** DG Bank, **Renzo Piano's** Aurora Office Tower, and **Baumschlager + Eberle's** Marina Building. Residential Section: **Steel Houses.** Plus people and products involved and a wealth of past projects.

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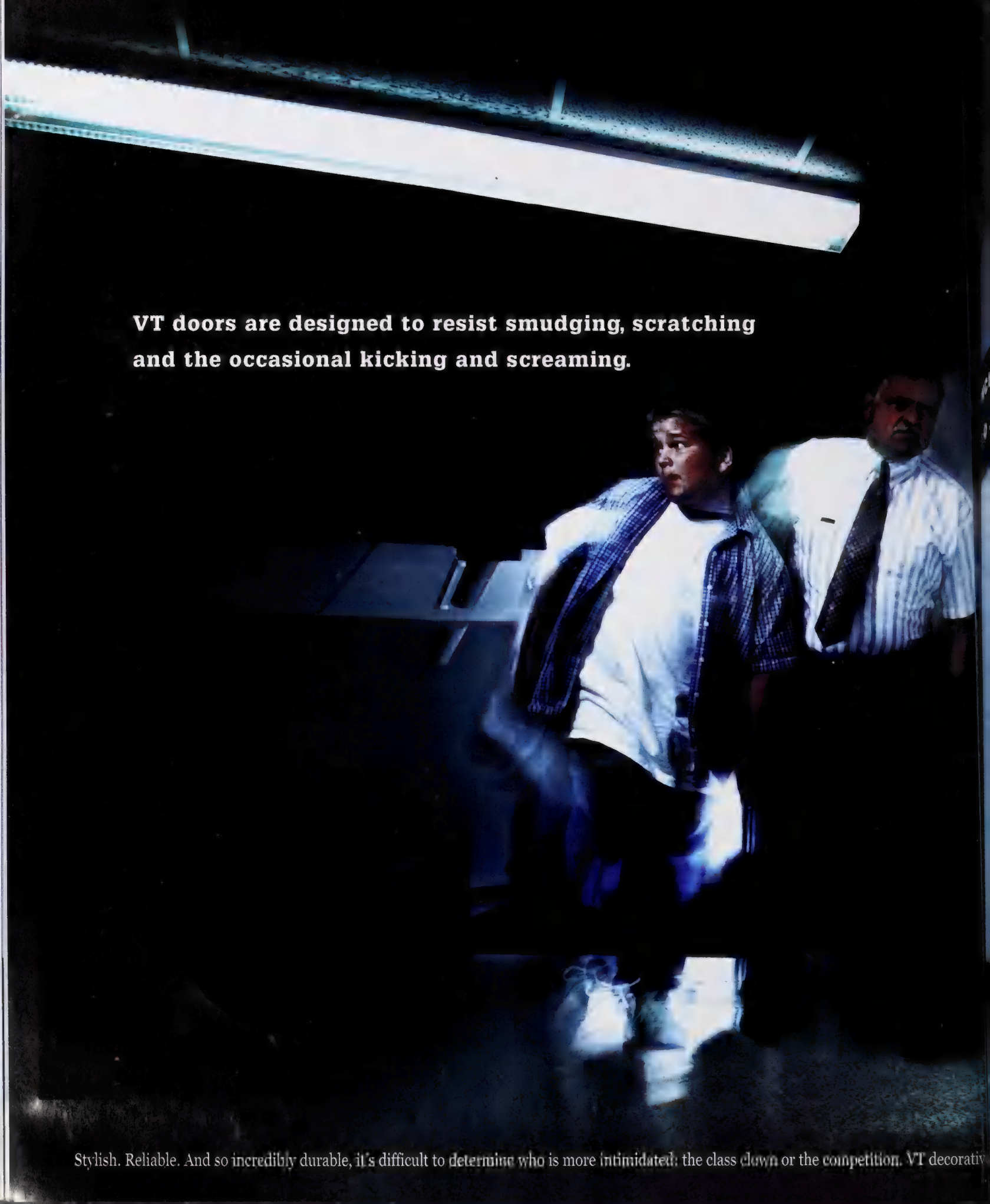
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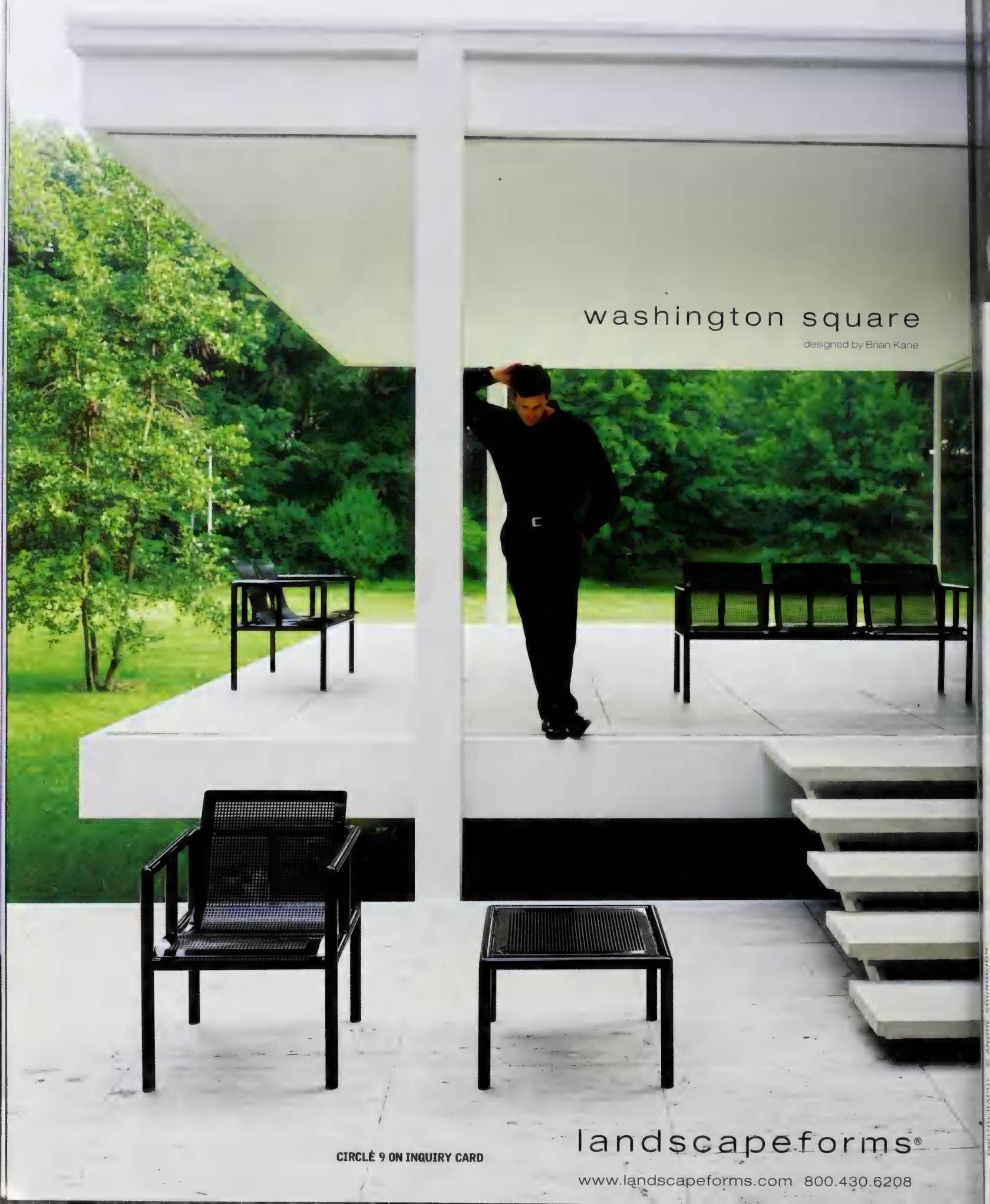


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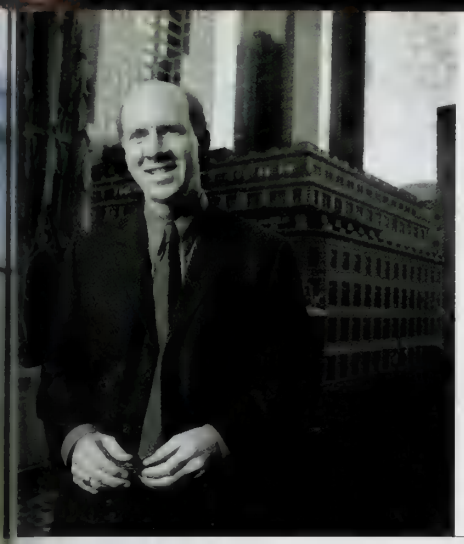
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Shaking off the terror

Editorial

By Robert Ivy, FAIA

Tuesday, September 11, we walked through a door into a cold new world. Our passage was not by choice, but by wrenching, violent action. With tales of escape fresh on our lips and the pall of smoke still in the air, we are beginning again, sweeping the streets, burying the dead, clearing the debris, and returning to work while shaking off the terror. For many of us, Tuesday was the blackest day in our lives, unleashing nihilism and destruction on American soil.

Since then, our perspective has changed: What might have seemed important on September 10 now seems trivial or transformed. For architects, discussions have centered not only on building forensics, on the fiery collapse of the World Trade Center, but also on safety and security for tall buildings. Subsequently, many people are asking if skyscrapers should be built at all.

To clarify the argument, we need to separate the intent from the target. The terrorists who attacked the twin towers of the World Trade Center took aim, not at architecture in the abstract or at skyscrapers in general, but at an extreme expression of heroic materialism. The fanatics who drove the fuel-laden, airborne bombs into the World Trade Center chose buildings constructed at another dark time, the late 1960s and early 1970s. While critically disdained in 1973, they had acquired a surreal presence as universal icons of American commercial power and dominance, much like the low-scaled, equally symbolic Pentagon in Washington. At night, or in afternoon light, they glowed.



Few buildings matched the towers' scale, or the scale of loss when they fell. Yet high mortality at the WTC should not spell the death of future skyscrapers: They remain an expression of the American spirit, an urban equivalent of Manifest Destiny. When they were born in the cauldrons of 19th-century optimism in capital-intensive cities, skyscrapers reflected American expansionism and engineering hegemony, and they still help to define us.

By concentrating workers and housing, they have fostered an urban resurgence, replete with fragrant energies, encounters, and opportunities for cultural dialogue at a time when world populations continue to expand. Energy intensive in their making, they nevertheless conserve land, the most precious commodity, and provide an antidote to sprawl.

Who can imagine an effective alternative? Haven't we moved beyond the suburban office park, a profligate development model that peaked in the 1970s and '80s? Must we rely on the automobile and fling apart from each other in a contemporary version of fortress building? By contrast, cities remain the finest expression of civil society, demanding cooperation in proximity and releasing positive energy as by-product.

Should skyscrapers change? For the near future, until the dust has cleared, we can temper our pride with an acute civic consciousness, continuing to build big but rethinking the pattern. Perhaps we will design high-rises in aggregate, remembering lower Manhattan prior to the twin towers, avoiding the overweening gesture, focusing on differentiation and detail rather than bravado or extreme height. Our goal can still be tall, if not supertall, buildings.

In professional circles, we should debate the safety of the megastructure, since buildings above 50 stories raise unique questions of egress and safety, such as "Do bunkered sky-lobbies make sense? Should all elevators exit at street level?" We should converse with developers and office workers, listening and probing while leading discussions on what types of high-rises seem comfortable, accessible, and appropriate.

Despite all our momentary fears, low-rise buildings and dispersal to the suburbs are not the best answers, but a form of capitulation. While others may offer political or military solutions to the challenges of terrorism, architects and other design professionals can hatch their own courageous plans, offering collaborative vision to lead us up, out of these ashes.

SPECIAL REPORT





World Trade Center's Robust Towers Succumb to Terrorism

By Deborah Snoonian, P.E., and John E. Czarnecki, Assoc. AIA

On September 11, the world looked on in horror as the twin towers of New York's World Trade Center collapsed after each was struck by a hijacked commercial aircraft. In the disaster's aftermath, the design and construction community is assisting cleanup efforts, assessing why and how the structures failed, and discussing the future of skyscrapers and lower Manhattan—while recognizing that few, if any, of the nation's iconic structures can be fully protected from terrorist acts.

Both towers were hit by Boeing 767s en route from Boston to Los Angeles—each heavy with jet fuel for the cross-country flight. The South Tower, known as Two World Trade Center, came tumbling down just under an hour after it was hit. The North Tower, or One World Trade Center, collapsed about an hour and a half after the attack. Seven World Trade Center, its integrity compromised by the nearby crashes and explosions, crumpled later in the day. At press time, 276 people were confirmed dead in the attack, and more than 6,400 people were still missing.

Mohamed Atta, the alleged ringleader of the terrorist mission and one of the hijackers of the Boeing 767 that hit the North Tower, reportedly obtained a degree in architecture from Cairo University and studied urban planning at the Technical University of Hamburg-Harburg in Germany. Atta's father has denied his son was part of the attack and has claimed the real hijacker stole his son's identity.

Within a day of the strikes, New York City hired LZA/Thornton-Tomasetti Group, a New York engineering firm, to oversee a team of contractors to conduct inspections of surrounding buildings and keep the disaster areas safe for



1. 1 World Trade Center. Minoru Yamasaki & Associates and Emery Roth & Sons, 1973
2. 2 World Trade Center. Minoru Yamasaki & Associates and Emery Roth & Sons, 1973
3. 3 World Trade Center (Marriott Hotel). SOM, 1981
4. 4 World Trade Center. Minoru Yamasaki & Associates and Emery Roth & Sons, 1977
5. 5 World Trade Center. Minoru Yamasaki & Associates and Emery Roth & Sons, 1972
6. 6 World Trade Center. Minoru Yamasaki & Associates and Emery Roth & Sons, 1974
7. 7 World Trade Center. Emery Roth & Sons, 1978
8. 1 Liberty Plaza. SOM, 1974
9. East River Savings Bank. Walker & Gillette, 1934
10. Millennium Hilton. Eli Attia Architects, 1992
11. Federal Office Building. Cross & Cross and Pennington, Lewis & Mills, 1935
12. N.Y. Telephone Building. McKenzie, Voorhees & Gmelin, 1927
13. 4 World Financial Center. Cesar Pelli and Haines Lundberg Waehler, 1986
14. 3 World Financial Center. Cesar Pelli and Adamson & Associates, 1985
15. The Wintergarden. Cesar Pelli, 1988
16. 2 World Financial Center. Cesar Pelli and Haines Lundberg Waehler, 1987
17. 1 World Financial Center. Cesar Pelli and Adamson & Associates, 1987
18. 90 West Street. Cass Gilbert, 1907
19. Bankers Trust Bank. Shreve Lamb & Harmon, 1912

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Highlights Architects speak out p. 25
Engineers assist removal p. 27
More news p. 42



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recovery workers (see "Local engineers rush to assist removal," page 27). At press time, all seven buildings in the World Trade Center complex had collapsed at least partially, and structural repairs will be needed on three large office buildings: 30 West Broadway, Bankers Trust, and 3 World Financial Center. Other nearby structures sustained extensive facade, window, and soot damage. It will be weeks to months before they can be occupied again.

An innovative design

Completed in 1973, the 110-story skyscrapers were designed by Minoru Yamasaki & Associates of Detroit with Emery, Roth & Sons of New York. The North Tower was 1,368 feet tall; the South Tower was six feet shorter. For a brief time, they were the world's tallest buildings, until Chicago's Sears Tower surpassed them in 1974.

The towers were classic examples of tube structures, which gain their strength from tightly spaced perimeter columns that provide wind resistance. Perimeter steel columns, spaced 39 inches on center, were braced laterally by 40,000-square-foot floor diaphragms of concrete and metal decking on 60-foot horizontal steel trusses extending from the concrete core. The building's central core carried only the dead load of the elevator bank. The open floor plate was unencumbered by any columns from the perimeter to the core.

To preserve floor space on the lower stories, Otis Elevator developed a central network of express and local elevators for the towers, requiring passengers to change elevators at sky lobbies on the 44th and 78th floors—a solution that halved the number of elevator shafts needed.

Local damage led to failures

Several groups, including the American Institute of Architects (AIA), the American Society of Civil Engineers (ASCE), and the American Institute for Steel Construction (AISC), have assembled forensic teams to determine exactly how the structures failed. Although the investigation continues, experts point to a likely progressive collapse—a chain reaction of failures triggered by damage to a relatively small portion of a structure.

(continued on page 24)

In terrorist attack, Pentagon sustains damage in newly renovated area

When American Airlines Flight 77 slammed into the Pentagon the morning of September 11, it left a gaping hole in the southwest side of the structure near the heliport, in an area known as Wedge 1, whose renovation was completed earlier this year as part of an ongoing $1.1 billion upgrade of the entire Pentagon complex. Reinforcements call for protection against explosion and subsequent progressive collapse, including blast-resistant windows and debris-catching material strung between vertical steel beams installed around each window. Officials believe these improvements helped save the building from further harm and allowed people to escape the damaged area. Many of the blast-resistant windows didn't break at all.

The five-story Pentagon is divided into five wedges, and its offices are arranged in five concentric rings connected by a series of corridors. In the crash area, the building's outermost E-ring collapsed completely, and the worst damage extended into the first and second floors of the B-ring.

At press time, 30 people were confirmed dead in the attack, and another 159 were still missing.

The idea of housing what was then called the War Department in a single building was conceived in mid-July 1941 by Brigadier General Brehon B. Sommervell, chief of the construction division of the Office of the Quartermaster General. In just a month, the Pentagon was designed by a team of Army engineers, construction experts, and a Los Angeles architect named George Edwin Bergstrom who was a "dollar-a-year" volunteer during the Roosevelt Administration. It was dedicated on January 15, 1943, sixteen months after ground was broken on September 11, 1941—exactly sixty years before the deadly attack.

Still considered one of the world's largest office buildings, the stripped-down-Neoclassical Pentagon was named a National Historic Landmark in 1992. *DS*



SPECIAL REPORT

GONE SO FAST

The World Trade Center had a total of seven buildings, including the two towers. The whole complex had more than 10 million square feet of office space, seven times the area of the Empire State Building.

The ground breaking was held August 5, 1966. A ribbon cutting ceremony was held April 4, 1973.

The Port Authority of New York and New Jersey built the towers.

Both towers were 110 stories tall. Tower One (completed in 1972) was 1,368 feet tall and Tower Two (completed in 1973) was 1,362 feet tall.

The twin towers were the world's tallest buildings until Chicago's Sears Tower was completed in 1973.

Each tower had 104 passenger elevators and 21,800 windows.

In strong winds, each tower swayed approximately three feet from true center.

Each tower's foundation extended more than 70 feet underground to rest on solid bedrock.

The ground-level World Trade Center Plaza was larger than Venice's Piazza San Marco.

More than 50,000 people worked in the World Trade Center, which was home to more than 430 companies from 26 countries.

An estimated $10 million worth of art was destroyed in the disaster, including Alexander Calder's 25-foot-tall "Three Red Wings" stabile and Miró's "World Trade Center Tapestry."

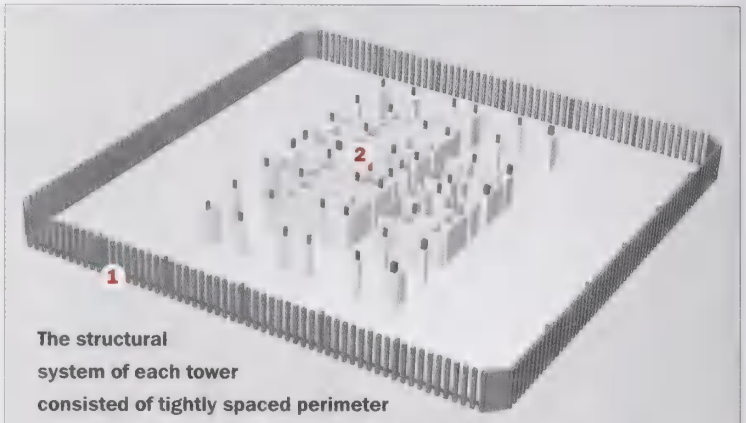
WTC cost $1.5 billion in 1973 dollars.

(continued from page 23)

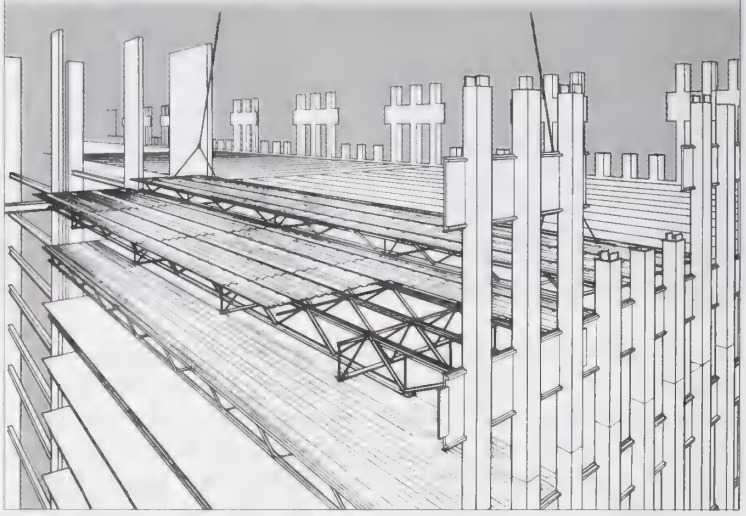
Progressive collapses are a common mode of failure for buildings that suffer severe local damage, such as that caused by an explosion; the Murrah Federal Building in Oklahoma, which was bombed in 1995, is one example. "From what I've seen, the collapse of the towers was a classic case of this sort of failure," said Norris Stubbs, a professor of civil engineering at Texas A&M University, who was on the team that examined the World Trade Center after the 1993 bombing.

The crashes destroyed columns and floors on several stories of each tower, which transferred abnormal, excessive loads to the remaining columns. "It appeared that the floor systems lost their connection to the exterior columns," observed Jon D. Magnusson, chairman and CEO of Skilling Ward Magnusson Barkshire, a successor firm to the towers' original structural engineer, who is serving on the forensic teams for ASCE and AISC. "Since the floors provided the perimeter columns with resistance against buckling, the columns would have begun to lose lateral stability," said Stubbs.

The explosions and raging fires severely weakened the remaining columns, which were already overloaded by the breaches caused by the crashes. "Jet fuel releases much more heat than paper and plastic, which typically fuel office fires," said David A. Lucht, director of Worcester Polytechnic Institute's Center for Fire Safety Studies. Fireproofed steel loses half its strength when it reaches 1,100°F and fails rapidly above 1,600°F; temperatures inside the building were likely even higher. In an interview with CNN, Aaron Swirsky, one of the original architects with Minoru Yamasaki & Associates for the towers, theorized that jet fuel may have leaked down through the core of the buildings, possibly causing more explosions and fire damage than could be seen from outside.



The structural system of each tower consisted of tightly spaced perimeter columns (1). The concrete core carried only the load of the central bank of elevators and stairwells (2). *(Drawing is not to scale.)*



The floors of each tower were unencumbered by columns from the perimeter to the central building core, as shown in perspective drawing above. *(Drawing is not to scale.)*

The steel columns, weakened by fire, finally buckled, and the floors they supported dropped on top of one another in a "pancaking" action. Each falling floor overburdened the columns and floors below it, causing the buildings to tear themselves down. Video footage of the South Tower showed that the top of the building above the breached area began to topple over just before the floors below it gave way and triggered a full collapse.

If fire proves to be the primary culprit for the failures, the World Trade Center disaster will be the first known failure of American skyscrapers due to fire. Structural damage to the towers from the 1993 bombing was relatively minor and was fixed, said Stubbs, who believes this damage did not contribute to the collapses.

Design was adequate

Project engineer Leslie A. Robertson's statement that the towers could survive being struck by a Boeing 707, a smaller plane with a much lower fuel capacity, have been recalled since the disaster. Experts acknowledge that the very nature of the design of the towers allowed them to withstand the crashes without toppling instantly. "The planes ripped huge holes in the buildings, but there were many remaining columns that were strong enough to bridge those holes, and they held up the rest of the structure for a time, which let many people get out," Magnusson said. Some speculate that if the towers had been struck lower, the force of the crashes

(continued on page 26)

RENDERINGS: COURTESY ARUP ASSOCIATES (TOP), ARCHIVAL DRAWING (BOTTOM)

Rebuild the WTC towers? Death of the skyscraper? Architects and engineers weigh in

RECORD asked architects and engineers who have been an interest in the World Trade Center and the design of tall buildings, What is the future of the WTC site? What impact does this event have on the future of skyscrapers?

"It would be entirely appropriate to have the Trade Center reproduced at this site. If we turn the site into a memorial, in a way, it would be a monument to the success of terrorism."

—HENRY GUTHARD, SENIOR VP WITH MINORU YAMASAKI & ASSOCIATES, AND A MEMBER OF THE ORIGINAL WTC DESIGN TEAM

"They ought to rebuild the [WTC] buildings, but not necessarily as targets. I don't think Americans should be swayed by what those bastards did."

—BRUCE GRAHAM, FAIA, SOM LEAD ARCHITECT FOR CHICAGO'S JOHN HANCOCK CENTER AND SEARS TOWER

"Rebuilding the WTC as it was would be showing nostalgia for a world that doesn't exist. What has happened with the media coverage shows we don't need monuments. Buildings no longer contain memory. The media contains that memory. So we need to build again with the understanding that we don't want to build the same buildings."

—PETER EISENMAN, FAIA

"It changes our thinking about [skyscrapers], no doubt about it. There was nothing wrong with the conceptual design [of the WTC towers]."

—WILLIAM LEMESSURIER, STRUCTURAL ENGINEER FOR MANHATTAN'S 59-STORY CITICORP CENTER

"The only way to demonstrate our strength would be to build two towers of similar size. I don't see why we should capitulate to a group of criminals."

—CESAR PELLI, FAIA, ARCHITECT OF THE NEARBY WORLD FINANCIAL CENTER AT BATTERY PARK CITY

"The site has to be rebuilt. Economics will dictate what goes there."

—CAROL ROSS BARNEY, FAIA, PRINCIPAL, ROSS BARNEY + JANKOWSKI, ARCHITECT OF THE GSA'S NEW FEDERAL CAMPUS IN OKLAHOMA CITY

"The future of the tall building will have to receive scrutiny regarding its structure and life safety systems. The tall building is a fundamental component of dealing with density, and it will continue to be."

—WILLIAM PEDERSEN, FAIA, PARTNER, KOHN PEDERSEN FOX

"I don't know that the twin towers should be rebuilt. Perhaps an even more spectacular skyscraper with its own distinct form would be better. On the other hand, there is much to commend in rebuilding Yamasaki's building."

—ROBERT A.M. STERN, FAIA

"I hope that they rebuild, whether they rebuild that exact structure or not. To turn it into a park does not capture the essence of what New York is. It's about density and bustling sidewalks, and that's the nature of the city."

—KENNETH T. JACKSON, EDITOR OF THE ENCYCLOPEDIA OF NEW YORK

"I suspect the design criteria [of tall buildings] may change in the future. I'm not sure that height is an issue, though."

—RICHARD GREEN, FAIA, CHAIR AND CEO OF STUBBINS ASSOCIATES

"Whatever is built on this site will say more about us as a people and how we see our future than about concrete, steel, and glass. The WTC should be redeveloped as a strong symbol of America's resolve.

—EDWARD A. FEINER, FAIA, CHIEF ARCHITECT OF THE U.S. GENERAL SERVICES ADMINISTRATION (GSA)

"Unquestionably there will be a [short-term] stop [in plans for tall buildings]. This is inevitable. [But] the desire to build very high and slender buildings is so ingrained in the way we are. Tall buildings will be built with great care and consideration."

—CESAR PELLI, FAIA

"Any building, whether it's low or high, is vulnerable. Terrorists don't discriminate. They will find a way."

—MIR ALI, PROFESSOR, UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN SCHOOL OF ARCHITECTURE AND EXPERT ON TALL BUILDING DESIGN

"Reimagining the city would be the best memorial, not a permanent hole amid the streets of downtown."

—HUGH HARDY, FAIA

"There will certainly be a memorial planned for the site. I think the most eloquent one might be two squares, each an acre of grass marking the footprint of the former towers. But respecting their absence, we should also assert a positive plan to rebuild 12 million square feet of mixed-use and commercial space on the site."

—CAROL WILLIS, DIRECTOR OF THE SKYSCRAPER MUSEUM, NEW HOME TO BE BUILT NEAR THE WTC SITE

"It was a great symbol. I'll be very disappointed if we end up with a park on that site. There should be something as dramatic built—tall or even taller. Something has to rise on that site. I'm still very optimistic on building tall buildings."

—JOHN SHEEHY, FAIA, RIBA, PRESIDENT OF ARCHITECTURE INTERNATIONAL AND A MEMBER OF THE SOM DESIGN TEAM FOR CHICAGO'S HANCOCK CENTER

"We may take a break from building such giants, but given their symbolic value and given time to regain our confidence, I think skyscrapers will inevitably remain a sign of the achievement of our civilization."

—EDWARD A. FEINER, FAIA

"The notion of the [tallest] skyscraper as a singular icon may have seen its day because of its vulnerability. It has become such a target, and it doesn't make much sense anyway."

—BRUCE FOWLE, FAIA, PARTNER, FOX & FOWLE ARCHITECTS



PHOTOGRAPHY: © AP PHOTO/STUART RAMSON

SPECIAL REPORT



(continued from page 24)

would have exceeded the buildings' resistance to overturning and they would have come down immediately, endangering nearby buildings as they fell.

"There was absolutely nothing wrong with the conceptual design of the towers," said William LeMessurier, the structural engineer for New York's 59-story Citicorp Center. "No one could anticipate the extraordinary impact, fuel load, and resulting fire."

Other skyscraper design solutions probably would not have fared any better. "[The towers] were very robust structures," said Mir Ali, professor of architecture at the University of Illinois at Urbana-Champaign and an expert on tall building design. "The design solution used probably wouldn't have mattered, given the nature of the crash." A structural system using a central core for wind resistance, for instance, would have had perimeter columns spaced at least 10 feet apart—a common design technique for high-rises. But, Magnusson said, "if the crash destroyed a central core, as it likely would have, there wouldn't have been enough exterior columns to support the structure afterward. It's likely such a building would have fallen right over."

Designers agree that few structures, no matter what their height, can endure such aggressive attacks. "Only a nuclear containment vessel or a missile silo is designed to withstand that kind of impact and fire," said Robert Solomon, chief building fire protection engineer for the National Fire Protection Association. Even buildings reinforced to withstand blast loads, such as the area of the Pentagon struck in the attack (page 23), aren't entirely safeguarded against damage.

Twin icons, vanished

The absence of the twin towers dramatically changes New York's skyline. Cesar Pelli, FAIA, designed the World Financial Center at Battery Park City with the World Trade Center as its backdrop. "It doesn't feel right or appropriate that those buildings are now set against only the sky," he told RECORD.

The attack will also have major consequences for other buildings planned for the city. In the week following the disaster, it was already apparent that New York's building boom will be stalled by the disaster. Skilled laborers, including ironworkers, crane operators, and carpenters, left the city's major construction projects to help in the rescue and recovery efforts. The need for workers to quickly retrofit office space for displaced companies will further worsen the city's shortage of skilled workers. Major

(continued on page 28)

All 140 Mancini Duffy employees survive WTC disaster unscathed, back to work in three days

Mancini Duffy, an architecture firm that has maintained an office in the World Trade Center since it opened in the early 1970s, feels very lucky. All of the firm's 140 employees survived the September 11 disaster without a single injury, and most were back to work three days later in a temporary office.

"We did not lose any people and we are very fortunate for it," said Dave Hannaford, chief financial officer and principal at Mancini Duffy. The firm had an office in Tower One until the 1993 bombing, and had space on the 21st and 22nd floors of Tower Two since then.

The new location did not guarantee peace and calm. On the morning of September 11, Hannaford was checking his e-mail when he heard a loud boom. Colleagues on the other side of the office gasped as they saw a fire high above in nearby Tower One—a plane had hit it. "My initial reaction was that I had no idea what happened," Hannaford said. "From our view, it did not appear that there was extensive damage. I honestly thought some lunatic brought a bomb to work."

Mancini Duffy employees, who did not hear any announcement in the building as they watched the top of the adjacent tower burn, took their own initiative and headed for the fire exits. "We proceeded down the stairwell in relative calm. It probably took about 10 minutes to get out of the building, and it was a crowded but orderly exit." Hannaford said. "Once we got down to the lobby, we saw a tremendous amount of debris landing, but no one to tell us what to do. We actually milled around the lobby for several minutes before we realized we should get out of the building."

With debris falling from the sky, they dispersed into the streets. Hannaford headed east and watched the scene unfold a few blocks away. Within minutes, a plane hit Tower Two, the building that Hannaford had just evacuated. He said he didn't actually see the plane hit, but did see the huge explosion and fireball. Bewildered and unsure of exactly what had happened and intent on leaving the area, Hannaford just kept walking east and then north away from the towers, eventually reaching midtown. As he walked farther away, he saw the towers collapse, barely stopping on his way to a ferry across the Hudson, to eventually reach his New Jersey home.

That evening, Mancini Duffy principals contacted each other and made plans for a meeting on the following afternoon. Relieved with news that all employees were safe, firm leadership quickly accepted an offer from their client, JP Morgan Chase, to take office space at 277 Park Avenue. Most employees attended a company meeting on the Thursday after the disaster and were back at work in the temporary office on the next day. The following week, new computers were in place and a new permanent office was procured. CAD files were retrieved from previous clients, and financial data was recovered from an off-site archive. Hannaford said, "We just want to get back to work and start rebuilding the firm." *John E. Czarnecki, Assoc. AIA*

PHOTOGRAPHY: © AP PHOTO/KEITH MEYERS

Local engineers rush to assist removal

There has been no shortage of volunteers in The Hole, as some refer to the 800,000 tons of wreckage, 100 feet deep, of what used to be the World Trade Center. At press time, a new group had mobilized to assist in the perilous demolition and removal process. Coordinated by the Structural Engineers Association of New York (SEAoNY), at least 150 volunteer engineers joined the effort led by the New York City Office of Emergency Management, the New York City Department of Design and Construction, and the New York City Building Department.

SEAoNY's mission has been twofold, the first taking place at ground zero. The site was divided into four quadrants, each assigned to a different contractor to handle the demolition and removal. Teams of three engineers were rotated through each quadrant in 12-hour shifts. Their task was to advise the contractors on the most stable places to erect cranes and to operate heavy machinery. They also helped determine the safest sequence of removal, especially of large pieces of steel and concrete that have the potential for causing further collapse. "We are another set of eyes," said one SEAoNY officer, referring to the surgical nature of the operation.

The second part of the mission was forensic, a structural triage of sorts. Teams of engineers completed a visual inspection of some 350 buildings around the perimeter of the disaster site. The engineers used the ATC-20 system, an evaluation system developed by the Applied Technology Council for on-the-spot decisions regarding continued use and occupancy of buildings that have been damaged by an earthquake. First established in 1989 and revised in 1995 and 1997, the guidelines were specifically intended to enable volunteer structural engineers and building inspectors make a rapid and detailed assessment of buildings that may be at risk. At the WTC, buildings were graded and given a preliminary color code: green (apparently safe), yellow (limited entry only), or red (unsafe). A second round of inspections and more in-depth investigations will be required for any buildings marked yellow or red. In the meantime, volunteer engineers have continued to work doggedly around the clock, at considerable personal risk. ***Sara Hart***



Yamasaki's World Trade Center boasted an embattled, remarkable history



YAMA DESIGNS 110-STORY WORLD TRADE CENTER

In 1962, when Minoru Yamasaki was given the commission to design a World Trade Center on the lower west side of Manhattan, the plan had already been through years of tortuous New York politics, evolving from David Rockefeller's commitment to help the city's then moribund financial district. In 1960, Rockefeller recommended that a study be led by the local Port Authority, turning a private project into a public one, and involving Rockefeller's brother Nelson, then governor of New York.

Yamasaki worked with Emery Roth & Sons on the towers, and SOM designed a hotel. Names originally considered for the project include Bunshaft, Harrison, Stone, Gropius, Johnson, Pei, and Kahn.

Critics' reactions were mixed. Ada Louise Huxtable, architecture critic of the *New York Times*, originally liked the towers, though she later revised her opinion, calling them "the biggest, daintiest buildings in the world. There was no substance." Lewis Mumford accused them of "purposeless gigantism."

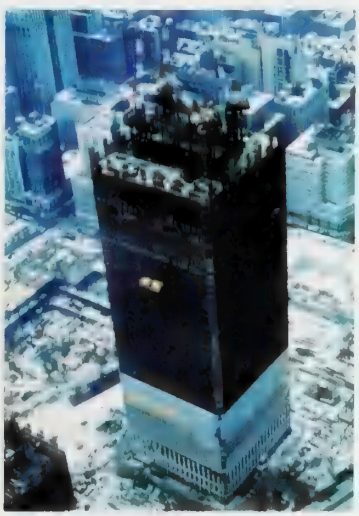
The towers entered modern mythology in 1972, when a skydiver landed on the roof. In the same year, another man safely parachuted from the top down into the plaza. The aerialist Philippe Petite once crossed between the towers on a tightrope, before being arrested. And in 1977, George Willig scaled Tower One.

On February 26, 1993, a truck filled with explosives blew up in a parking garage below the towers. The terrorists had planned to topple one tower into the other. Six people were killed and 1,000 others injured, but the buildings reopened.

Sportswriter Roger Kahn wrote in *The Boys of Summer* of his experience atop the towers during construction (where he tracked down former Brooklyn Dodger Carl Furillo at work for Otis Elevator):

"Wind was slamming across the Hudson, blowing bits of debris from unfinished floors. Four thousand men had been working for two years, and the sprawling site had acquired the scarred desolation that comes with construction or with aerial bombardment." *Kevin Lerner*





The WTC design by Yamasaki (top with model) was in the February 1964 issue of RECORD (top left).

SPECIAL REPORT



PHOTOGRAPHY: © BILL ROSS/CORBIS

WTC TOWERS COLLAPSE

(continued from page 26)

projects around the city that were slated to receive substantial public financing, including the $1.5 billion renovation of Lincoln Center [RECORD, MARCH 2001, page 27], the Guggenheim Museum on the East River [RECORD, MAY 2000, page 41], and possible new baseball parks for the Yankees and Mets, will be delayed at the very least and could be scaled back or reconsidered altogether.

And in the design community, the destruction of the towers was especially saddening for those who conceived them. Henry Guthard, senior vice president of Minoru Yamasaki & Associates, was on the original design team for the World Trade Center. He had been in New York just three days before the attack and saw the towers from his airplane window. Like others, he watched helplessly as the crashes eventually took them down. "To see it suffer these blows, to see it wince but not cower, that's what we prayed for," he told RECORD. "We're devastated now. They were so much a part of our lives. Every building is like a child to us." ■

WWW For continuous updates on the developing story at the World Trade Center, go to www.architecturalrecord.com to find a special section including:

- Updates on news events relevant to architects, revised as they happen.
- Firsthand accounts of the scene from RECORD editors who saw it.
- How to help: requests from displaced firms seeking assistance.
- Resource links for affected design professionals.
- Discussion forums on the future of cities and buildings.

See the special WTC section at:
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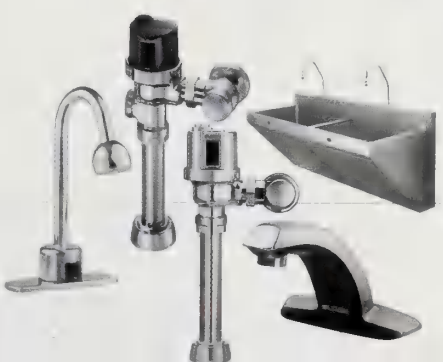
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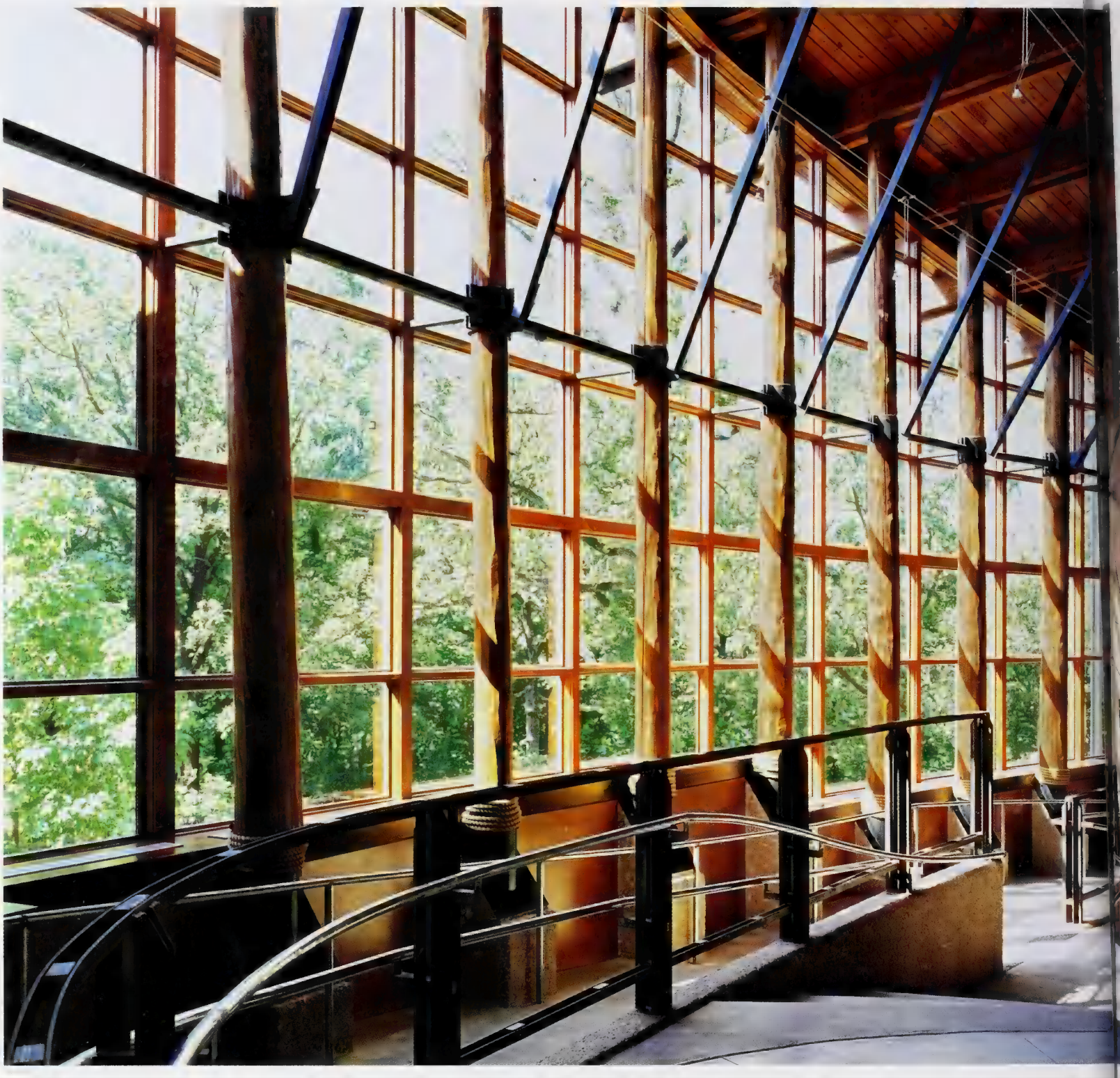
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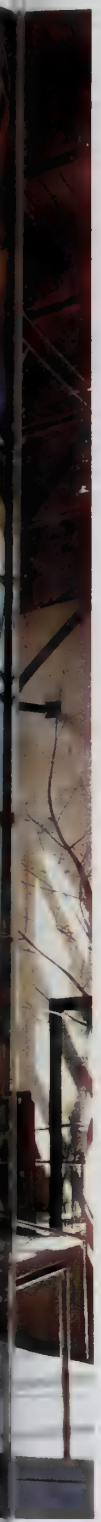
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Lanterns and light catchers

Photography by Eduard Hueber

They looked like what a child might draw: dual, flat-topped rectangles, 110 stories each (an acre per floor!), a daytime city of 50,000 souls rising above the steeples and turrets of lower Manhattan, orienting us from the eddies of New Jersey and from 42nd Street. Derided for a simplistic urban plan by distinguished critics, scaleless, monolithic, touted as the tallest buildings in the world until superceded by Chicago's Sears Tower, the twin towers of the World Trade Center embodied New York's and America's 20th-century economic preeminence—unsubtly and powerfully. They could not be ignored.

As time passed, they became marked by human experience, from working conferences and courtyard festivals to lazy Sunday afternoons at Borders and celebratory dinners



PHOTOGRAPHY: © ARCH PHOTO, INC., EDUARD HUEBER



The World Trade Center seen across the Hudson River at dusk—summer 2001. In the foreground, the World Financial Center. As framed by the Brooklyn Bridge (opposite).



at Windows on the World. Aesthetically, as our early perceptions evolved in our consciousness, the towers subtly changed from arrogant markers to anchors, glowing stakes in the schist of an island continent. Not beloved, perhaps—certainly not personality-filled—but lanterns and light catchers, their ribbed sides reflecting the sunlight and moonglow, their walls blooming in a vertical ribbon of evening twilight. Sundials, casting shadows.

Now they are gone, and the scale of the city has shifted. Somehow, in their absence, the sky looks bigger and the remaining buildings seem smaller in our view. We can see that the towers lent scale to the whole island, much as an arm does to the body. Gone in a flash, in the twinkling of an eye. *Robert Ivy*

Lower Manhattan as [illegible] Jersey City, [illegible] by massive 110-story twin towers, painted in [illegible] light.



Environmental Design Solutions with Water, Wind and Light

By Barbara A. Nadel, FAIA

FROM LAKEFRONT PANORAMAS, SWEEPING OCEAN VISTAS TO NATURAL LANDSCAPES, MARVIN WINDOWS AND DOORS PROVIDES HOMEOWNERS WITH DESIGN OPTIONS, RELIABLE SERVICE AND CUSTOMIZED CAPABILITIES.

Whether your design goals are to protect an upscale art collection, withstand coastal hurricane winds or simply to save on energy costs, Marvin Windows and Doors has a customized solution for your next residential project.

With over 11,000 standard sizes and unlimited custom capabilities, Marvin's *Made for you* manufacturing process produces windows and doors to meet a wide range of client requirements. These include creating unique shapes and sizes, custom casings, special glazing options, or divided lites. For Authentic or Simulated Divided Lites, Marvin can provide standard or custom options to meet every architectural style and budget. The following three case studies each used Marvin's custom capabilities to meet unique client criteria.

Preserving Art Amid an Island Setting



Interior living spaces with natural light and panoramic waterfront views are ideal for entertaining and relaxing. When an art dealer wanted an 800 square foot, two story addition with 360 degree lake views for his weekend retreat on Candlewood Isle, Connecticut, he turned to New York City architect Jeffrey Berman, AIA, principal of Jeffrey Berman Architect - and to Marvin Windows and Doors for the big picture solution. The house, located in the middle of man-made Candlewood Lake, was originally built with Marvin products, and both the client and Berman chose Marvin for the addition.

The design goals were to create a large space for entertaining, protect an art collection and capture the magnificent views overlooking the garden and the lake. Marvin was the only manufacturer to provide the flexibility needed for different sizes and shapes, including larger assemblies. The wide expanses of glass maximized views, while retaining a smaller, residential scale for a grand window wall, and avoiding a curtain wall look. Window trim is painted on the outside, and provides the only opportunity to add color to the building's exterior palette of natural materials.

"The client wanted Marvin Windows and Doors, because they offer the best thermal performance and airtight seals to protect artwork from dust and dirt. Humidity and temperature control were also considerations in the windy lakefront environment. We used insulated double glazed, operable windows with integrated screens. On a cool summer night, the clients will open a window, enjoy the breeze, and feel like they're outside," said Berman.

Beachfront Conditions Provide Design Challenges

Hurricane-strength winds, extreme temperatures, ocean views and natural light were the environmental design criteria for a home facing the Atlantic Ocean in Locustville, on Virginia's Eastern Shore. This seaside summer residence - designed by Don A. Swofford, AIA, principal of DASA, in Charlottesville, Virginia - in classic Colonial Williamsburg style, had to withstand hurricane winds exceeding 135 miles per hour. The Marvin Magnum Window series was specifically chosen to provide the historic house appearance and withstand hurricane wind loads.

"The code calls for 105 mph wind resistance, but the owner wanted to design to 135 mph for safety. The windows in the rooftop lantern could not have hurricane covers, so we designed the lantern with a steel frame running down to the foundation. Marvin's Magnum series provided 1-1/2" wide custom detailed muntins, solid thermal panes and Authentic Divided Lites. Year-round temperature swings at this Atlantic beachfront vary from 105 degrees in summer to 10 degrees below zero in winter. These windows provide good R-values to reduce interior cooling and heating loads," said Swofford.

"Marvin helped us meet our design goals by manufacturing high performance windows to reflect the Colonial Williamsburg style, while cutting project costs by 40 percent. As the first architect in Virginia to use Marvin Windows and Doors, I'm confident Marvin can meet criteria for any job and work with architects and owners to meet special design criteria. We know we can rely on the quality, performance and aesthetics of their products. The Magnum series has successfully met unusually high wind resistant requirements. Most importantly, our client is very pleased with the results," Swofford added.

Light-filled Small Scaled Addition Saves Energy Costs

Starting the day in a cozy light-filled breakfast nook overlooking the woods is just what architect Michael Crosbie, an Associate with Steven Winter Associates, Inc, in Norwalk, Connecticut, had in mind when he designed an addition on the north facing side of his 1938 vintage home. He wanted the new windows to match the existing "six over one" windows on the rest of the house. Crosbie achieved these aesthetic goals and more, with Marvin Windows and Doors.

Crosbie chose Marvin because of the high quality they provide, the custom capabilities and selection available to meet project needs. Specifically, the Simulated Divided Lites – the muntin bars separating panes of glass in a window sash - attached to the window gave the appearance of a true divided lite, while providing the advantage of double paned glass and energy efficiency.

"I wanted the small scaled addition to appear like it had always been part of the house, and Marvin worked out all the details just perfectly. They ganged three windows together in one assembly for easier installation, but the windows look like three separate units. The contractor installed the windows in less than a day. The product versatility is endless; Marvin will do anything you want," said Crosbie.



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Barbara A. Nadel, FAIA is principal of Barbara Nadel Architect, in New York City, specializing in programming, planning and design of institutional facilities. She is 2001 National Vice President of the American Institute of Architects and frequently writes about design and technology.

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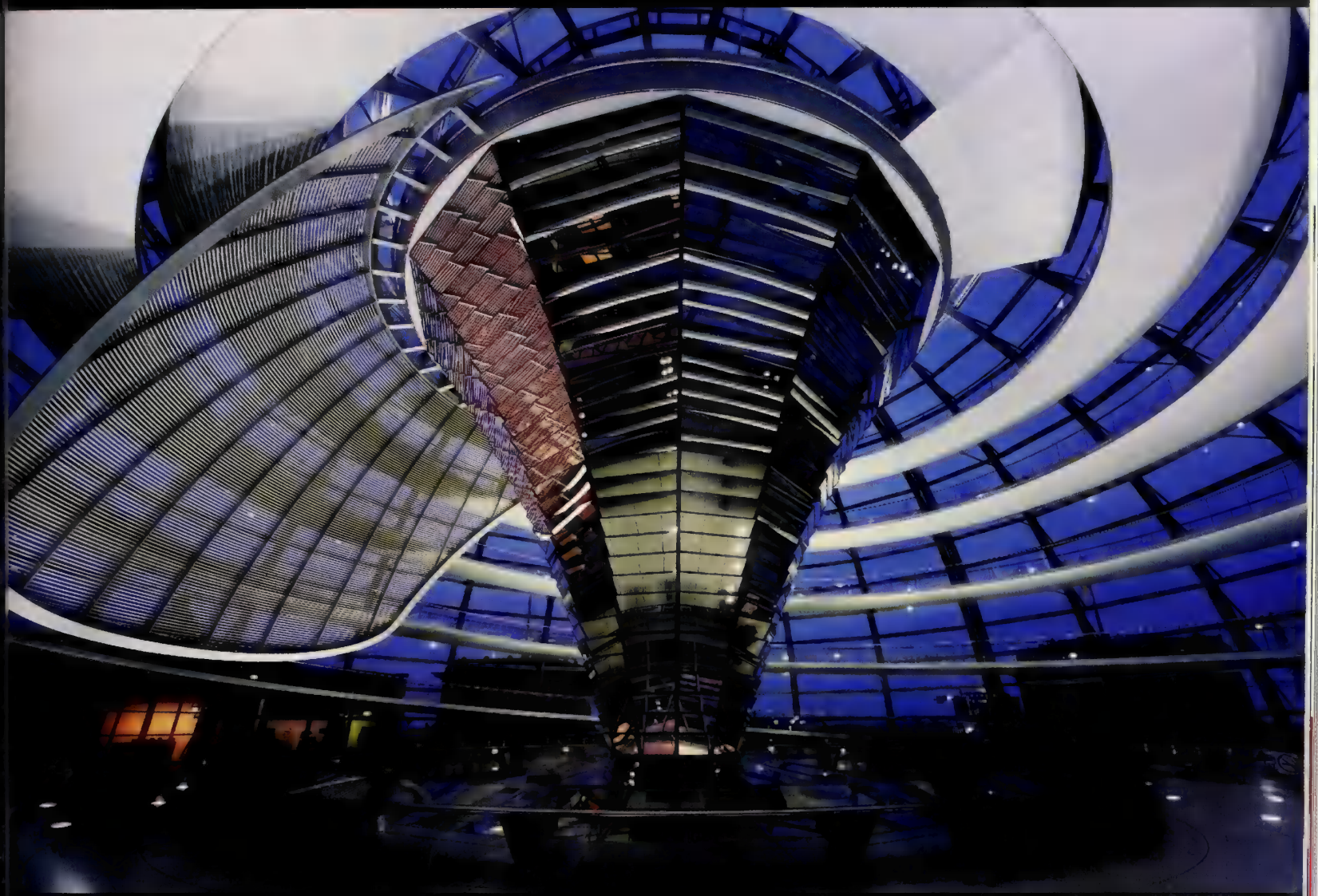
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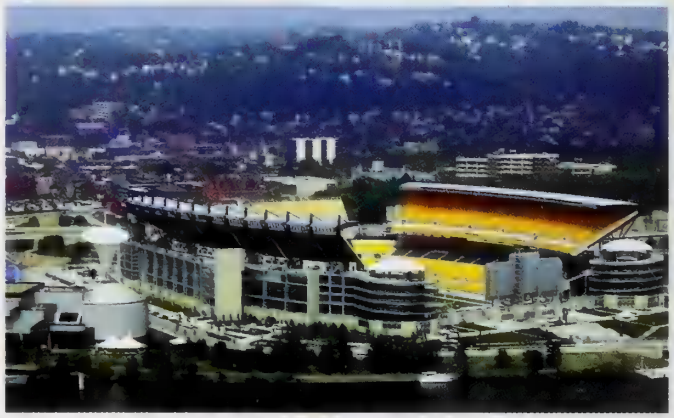
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CIRCLE 15 ON INQUIRY CARD

Broncos and Steelers open new football-only stadiums



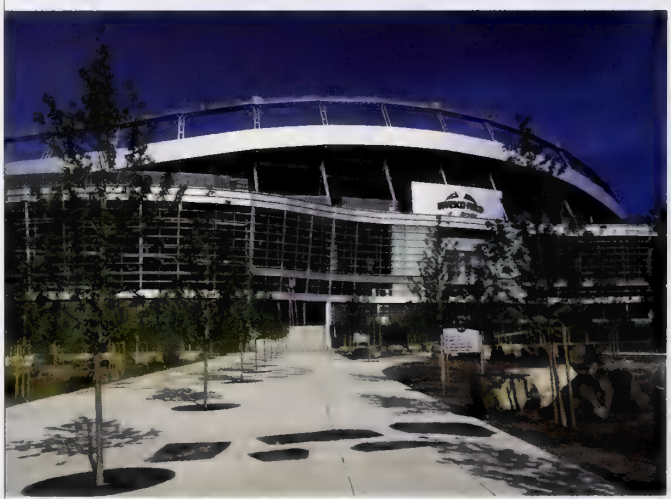
Pittsburgh's new Heinz Field replaces Three Rivers Stadium.

While the building boom is winding down for professional baseball parks, a number of National Football League teams are building football-only stadiums. New NFL stadiums opened this season in Pittsburgh and Denver, and teams in Seattle, New England, Detroit, and Houston will have new homes in 2002.

In Pittsburgh, just west of where Three Rivers Stadium had stood, the 65,000-seat, $281 million Heinz Field dominates the redeveloping North Shore of Pittsburgh's Allegheny River. The 1.5-million square-foot, football-only stadium, by HOK Sport with WTW Architects, is the new home of the Pittsburgh Steelers and the Pitt Panthers. Touted as the only open-ended stadium in professional football, with dramatic city views, the U-shaped facility features large spiral stairways and one of the NFL's largest scoreboards at its open end. From a base of precast stone, an exposed steel structure rises as a nod to the local industry. The stadium's upper decks, in three separate sections, are supported by distinctive yellow structural members in groups of four, dubbed "quad pods." Tapering steel columns support the lower decks, and glass curtain walls enclose two three-story club lounges. A significant revenue source, 130 luxury suites are leased with seating for more than 1,500 Steeler fans.

Denver's Mile High Stadium—built in 1948 but extensively modified over the years—was famous for its steep bowl and its horseshoe-shaped design. Set on the western edge of downtown, it was ugly, but rabid Denver Broncos fans loved the place. Several years ago, however, team owner Pat Bowlen declared the rusting hulk structurally and economically obsolete. He wanted a brand-new facility, and he offered to pay 25 percent of the cost if taxpayers paid the rest. Voters approved the deal in 1998.

Completed in August at a cost of $400.8 million, the awkwardly named Invesco Field at Mile High sits adjacent to the old stadium, which awaits demolition. Invesco Field was designed by HNTB Sports Architecture, of Kansas City, Mo.,.in association with Denver's Fentress Bradburn Architects and Bertram A. Bruton and Associates. The stadium, which has natural grass, retains several of the old facility's design elements, including a steep rake, steel treads and risers (the better to stomp on), and a horseshoe shape. But it's also quite modern, with curvy lines and an aluminum skin set atop an articulated brick base.



Denver's Invesco Field at Mile High features a sweeping roof line.

With 1.8 million square feet of built space, Invesco Field is more than double the size of old Mile High, though it contains roughly the same number of seats: 76,125. It also has 124 luxury suites, which cost up to $125,000 a year.

For two cities that are increasingly embracing the merits of good design, the new football stadiums in Pittsburgh and Denver are signature urban landmarks. *Charles L. Rosenblum and David Hill*

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Hypo Alpe-Adria-Center in Austria by Morphosis (left), Gagosian Gallery by Studio Works (below), and landscape at New York's Rose Center by Kathryn Gustafson (bottom).

Morphosis and Studio Works win 2001 Chrysler Design Awards

Architecture firms Morphosis and Studio Works and landscape architect Kathryn Gustafson were among the recipients of the 2001 Chrysler Design Awards. Established in 1993, the awards program recognizes the contributions of six innovators in a variety of design fields. Other honorees this year included graphic designers Susan Kare and Stefan Sagmeister, and digital designer Daniel Rozin.

At press time, an awards banquet was planned for October 3 in New York. Each honoree received a $10,000 prize and a trophy designed by previous winner David M. Kelly, chair and cofounder of IDEO, a product development firm.

Morphosis, a 25-year-old architecture firm based in Santa Monica, Calif., is headed by Thom Mayne, AIA. The firm has won numerous awards for both private and public commissions. Major projects include the headquarters for Austria's Hypo Bank and the General Services Administration Headquarters in San Francisco. Mayne is a cofounder of the Los Angeles architecture school SCI-Arc.

While Studio Works has had a number of built projects, the firm has won numerous awards for projects that were never constructed. Firm leaders Robert Mangurian and Mary-Ann Ray have taught and practiced for more than 25 years. Their projects include a combined gallery and residence for Larry Gagosian in Los Angeles and the low-cost InsideOutside House in Houston.

Kathryn Gustafson, who studied landscape architecture at the École Nationale du Paysage in Versailles, has won international recognition for her work in landscape design. Her projects include Paris's Parc de la Villette and the Rights of Man in the town of Evry, France. She is currently working on The Shoulder Garden for Millennium Park in Chicago.

The awards jury included Tim Brown, president of IDEO; Holly Brubach, former style editor of the *New York Times*; Stephen Doyle, founder of Doyle Partners, a graphic design firm; Omar Wasow, cocreator of blackplanet.com, an online community for African-Americans, and an analyst with MSNBC; and architect Tod Williams, who won the award in 1998. *Christina V. Rogers*

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CIRCLE 18 ON INQUIRY CARD



German Chancellor Gerhard Schröder kneels at the exhibit *Fallen Leaves* in the museum.

Libeskind's Jewish Museum in Berlin finally opens with installations

Even empty of exhibit material, the zinc-clad Jewish Museum (below) quickly became a cultural attraction in Berlin when it opened in 1998, drawing some 350,000 visitors yearly. Now, nearly three years after Daniel Libeskind's museum was completed [RECORD, January 1999, pages 76–89], the exhibit installation, designed and installed by German design firm Wüerth & Winderoll, has finally opened.

Critics wondered if Libeskind's powerfully metaphoric architecture—a deconstructed Star of David, featuring acute angles, tilted floors, and contorted underground tunnels symbolizing the difficult path of Jews in Germany history—would overshadow rather than accommodate the objects inside that are meant to tell the same story. To be a working museum, the building's air-conditioning, lighting, and wiring had to be revamped.

After entering the museum, a twisted metal underground "road" leads to the two-story permanent exhibit that unfolds along a winding path on which displays are grouped both thematically and chronologically. It comprises nearly 4,000 works in both traditional and new media, including touch screens, pivot panels, scrims, question drawers, and other types of informational displays. Play nooks and comment boards allow visitors to interact with the building's interior and note their impressions as they move through the museum. One exhibit, *Fallen Leaves* (left), features disks of rusted iron on which faces that appear to be screaming are etched. Two other underground roads lead to an outdoor garden and a dead end—the "Holocaust Void"—a large, empty space that rises up to the full height of the building.

The designers were careful not to block the building's signature slit windows, placing free-standing elements away from them and cutting display panels to fit spaces between them. Occasionally, tilted cases or columns mimic or emphasize eccentric architectural features.

The public exhibition opening was delayed from September 11 to 13 due to the World Trade Center disaster. *Jan Otakar Fischer and DS*



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CIRCLE 19 ON INQUIRY CARD

Will Alsop designs a light rail station for Canary Wharf in London's Docklands

Will Alsop has been commissioned to design a "distinctive and contemporary" Docklands light rail station at Canary Wharf in London. Funded by the Canary Wharf Group and the Docklands Light Railway, the transport facility is intended to accommodate the increased traffic expected as London's new business district nears completion.

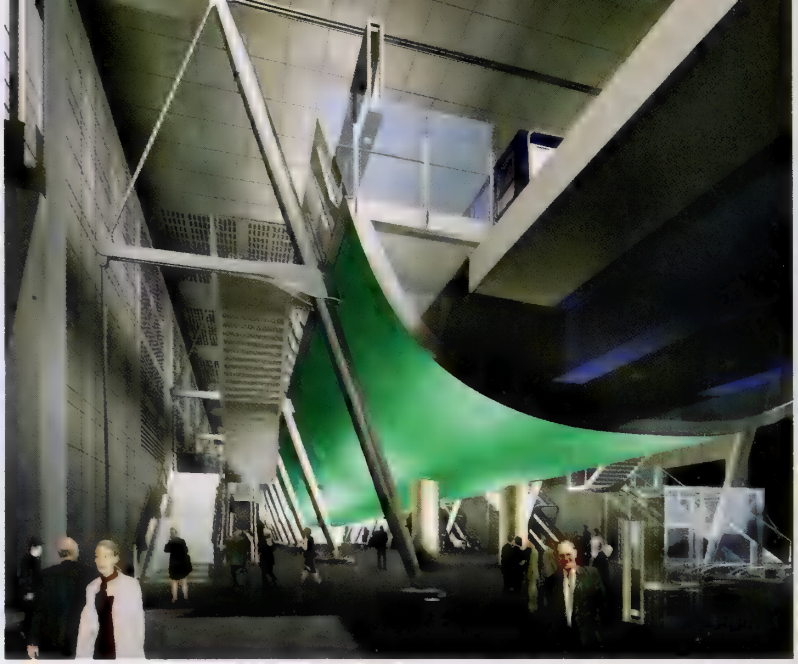
Called Heron Quays station, it will replace an existing light rail facility located on the southern edge of the former docks. The site is a short walk from Cesar Pelli's 1 Canada Square tower, the tallest building in England.

When the original Docklands Light Railway station was constructed, at the end of the 1980s, Heron Quays was an abandoned wasteland on the periphery of the Canary Wharf site. Today the same station is flanked by two fast-emerging towers and has become a key point of access between the Jubilee Line metro station (designed by Foster and Partners) and the commercial/residential district south of Canary Wharf.

The two new towers include Morgan Stanley's headquarters designed by Skidmore, Owings & Merrill and Lehman Brothers' building, which is Cesar Pelli's fifth building within the Canary Wharf masterplan. The Alsop station will be linked to both buildings and a ground-level retail precinct via an underground walkway. The towers and Alsop's station are due for completion in 2003. Built on stilts approximately 65 feet above ground, Heron Quays station will be wrapped in a stainless steel shell. The underside of the station will be enclosed by a concrete shell designed to act as a sound barrier.

The Canary Wharf Group has more than 7 million square feet of office space under construction across 12 sites in the area. Subject to market conditions, buildings in the Canary Wharf masterplan will be complete by 2006. Smooth-running, high capacity transport links are key to the long-term success of the Docklands development.

Adam Mornement



A Docklands rail station by Will Alsop will be built with a shell of concrete and steel.

IMAGE COURTESY ALSOP ARCHITECTS

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Less than 50 years old, IIT's Crown Hall among 15 sites named National Historic Landmarks

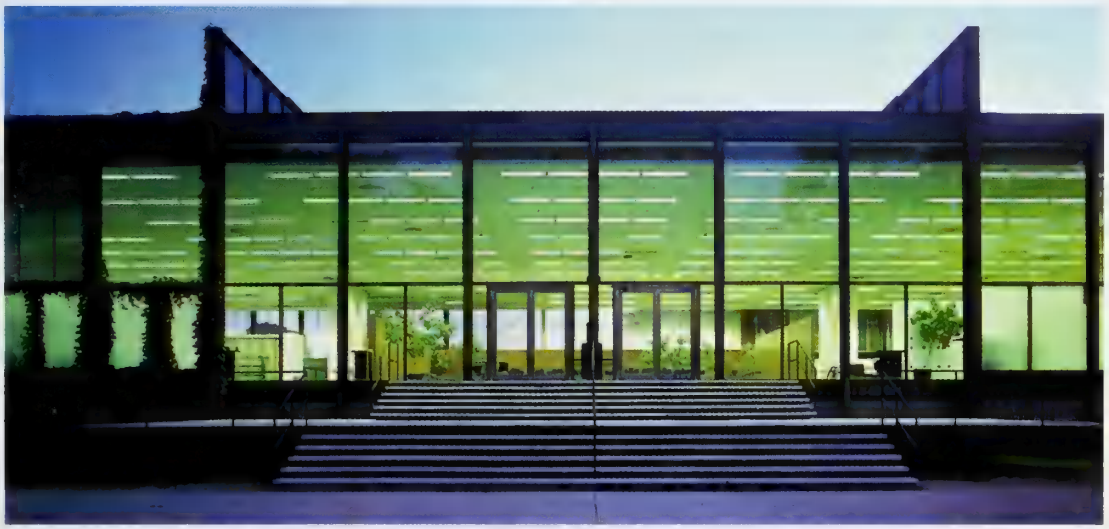
Secretary of the Interior Gale Norton has named 15 sites as National Historic Landmarks, five of which were designated for their architectural significance. The most notable among this group is Mies van der Rohe's S.R. Crown Hall at the Illinois Institute of Technology in Chicago. The other four landmark designees in the architecture category were the Merchant's Exchange Building in Philadelphia; Dutch Reformed Church, Newburgh, N.Y.; Samuel Wadsworth Russell House, Middletown, Conn.; and Gibson House, Boston.

Crown Hall will also receive a $250,000 Getty Institute Conservation Grant, which will be used toward the restoration of the exterior of the International Style masterpiece.

Mies was given the commission to design the entire IIT campus in 1939. Crown Hall serves as the home of the College of Architecture, which Mies led in the period of Crown Hall's construction. The building, completed in 1956, expresses Mies' often repeated maxims "less is more" and "God is in the details." Crown Hall is a single-story building with a structure that is completely supported by four steel plate girders, allowing for a single interior space with no support columns. The interior houses both studio space for students and a gallery. The July 1956 issue of RECORD contains Philip Johnson's assessment of the completed building: "Not since the Gothic," he wrote, "has there been such clarity of expression."

This year's National Historic Landmark announcements have been marred by a controversy surrounding the nomination of the Fresno Sanitary Landfill as a Landmark in the "Individual Topics" category. The dump is also on the Environmental Protection Agency's Superfund cleanup list, and its nomination has been put on hold.

Kevin Lerner



S.R. Crown Hall, completed in 1956 at IIT, has been designated a National Historic Landmark.

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Steven Izenour, architect and principal with Venturi Scott Brown Associates, dies at 61

Steven Izenour, AIA, who was inextricably a part of the architectural design and unique theoretical outlook of Venturi Scott Brown and Associates, died on August 21 of a heart attack during a rare vacation. A partner in the Philadelphia firm, he was 61. He joined VSBA in 1969 after assisting Denise Scott Brown and Robert Venturi in design studios at Yale that resulted in the seminal book *Learning From Las Vegas*, which he coauthored. He led programming and schematic design for most of the firm's major architectural projects, but he retained a special love for the simple, visceral appeal of the commercial signs and symbols that litter the American landscape. He transformed this imagery in several projects for the Walt Disney Company [RECORD, FEBRUARY 1998, page 58]. He designed festive lighting for Philadelphia's Benjamin Franklin Bridge and invested his own energy trying to convince the struggling beach town of Wildwood, N.J., to use its dilapidated but exuberant 1950s diner and motel architecture as a means to urban revival. "The bright pinks and greens that have come out of our office are Steve's colors," commented Scott Brown. "He was at the brightest end of everything we've done."

Colleagues especially miss Izenour's humor and spirit. "He took everyone under his wing," said Fred Schwartz, a former firm associate. Izenour is survived by three children, his wife, Elizabeth, and his parents, George and Hildegard Izenour. *James S. Russell, AIA*



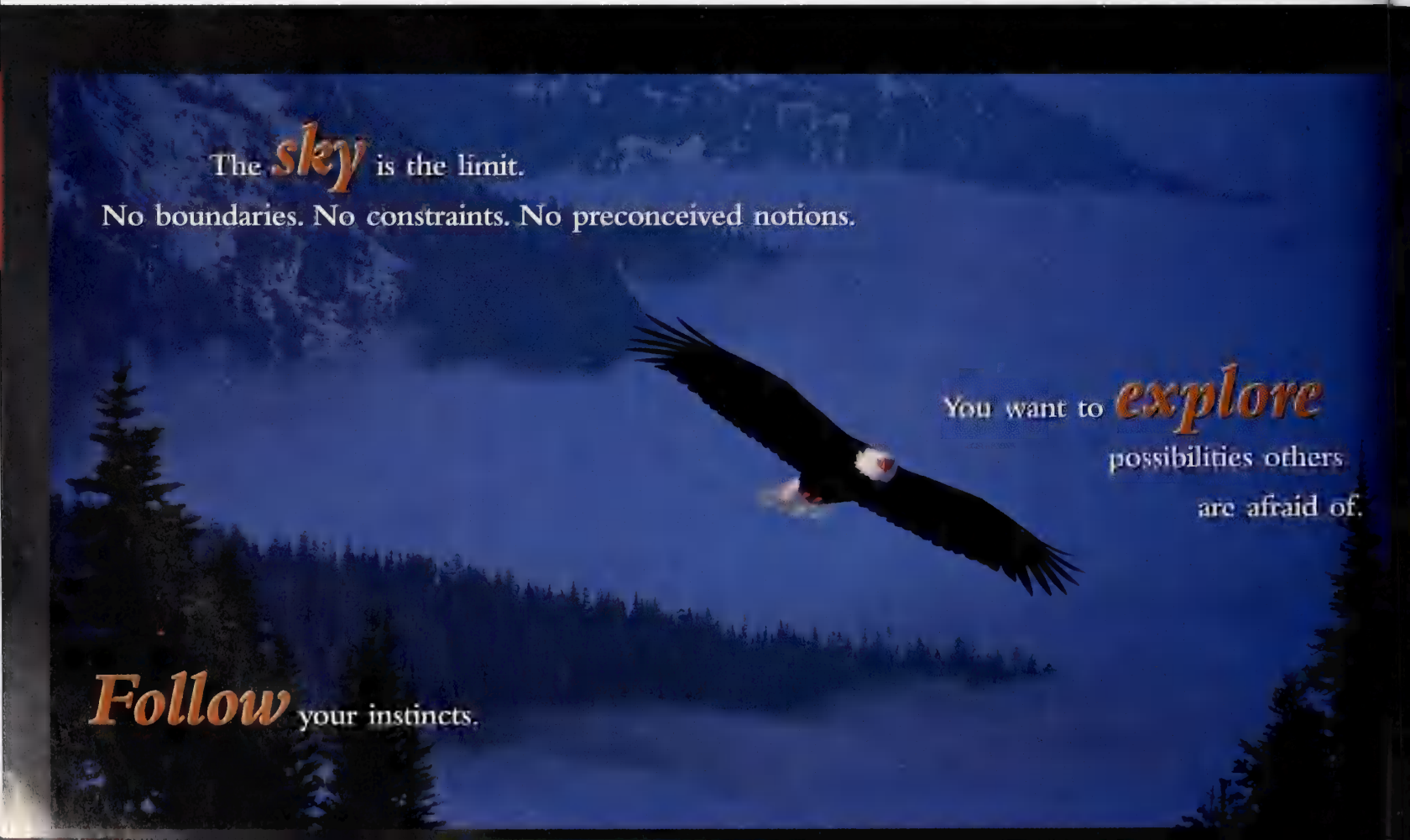






Work by Steven Izenour (above) include the A-Frame for Art (top), a house on Long Island Sound (top right), and the Camden Children's Garden (right).

PHOTOGRAPHY: © JULIE MAROUART (IZENOUR AND A-FRAME PHOTOS); COURTESY OF CAMDEN CHILDREN'S GARDEN)



News Briefs

Major changes for L.A.'s Century City The ABC Entertainment Center, the focal point of Century City in Los Angeles, is about to undergo major changes. The site, with the twin 44-story Century Plaza Towers, will have a new 15-story



ABC Entertainment Center in L.A.

office building with an unusual 90-by-110-foot opening in the middle (photomontage above). The 29-year-old Shubert Theatre will be razed for the new office. Gensler has been hired to design the new office and adjacent open space, to be developed at a cost of $280 million.

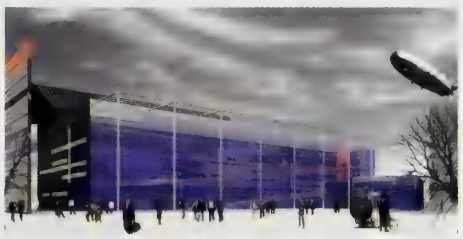
Nouvel wins Praemium Imperiale French architect Jean Nouvel has been named one of the winners of the 13th Praemium Imperiale award by the Japan Art Association. Other winners this year are Arthur Miller for theater/film, Ornette Coleman for music, Marta Pan for sculpture, and Lee Ufan for painting. The Praemium Imperiale is an annual award for global achievement in the arts given by the Japan Art Association. Nouvel, most famous for his l'Institut du Monde Arabe in Paris, is, according to the Art Association, an architect whose "buildings go beyond cultural constraints. He places great importance on harmonizing a building with its site and surroundings."

EHDD designs computer museum Esherick Homsey Dodge and Davis (EHDD) of San Francisco was selected from a field of three finalists in an ideas competition to design a permanent home for the Computer Museum History Center in Mountain View, Calif. The 80,000-square-foot museum will be located at historic Moffett Field as part of the proposed NASA Research Park. Construction will begin in fall 2003, with an opening scheduled for 2005. The other finalists for the project were Michael Maltzan Architecture of Los Angeles and William McDonough + Partners of Charlottesville, Va. The museum program calls for a grand lobby space, an events space, and a gallery for exhibiting artifacts from, and the history of, the computing era. Van Sickle and Rolleri of Medford, N.J., will design the exhibits.



John McRae

McRae moves from academia to RTKL John McRae, FAIA, has made an unusual move from academia to architectural practice. He has left Mississippi State University, where he was dean of the school of architecture for 14 years, to become a vice president at RTKL, where he will direct the firm's in-house education program, RTKL University, from its Baltimore office. RTKL University is being developed as an education and training curriculum and mentorship program for RTKL architects. "This level of commitment and focus by RTKL represents what I believe is an unusual, perhaps unique step among architectural firms and I look forward to the process," McRae says.



EHDD's scheme for the computer museum.

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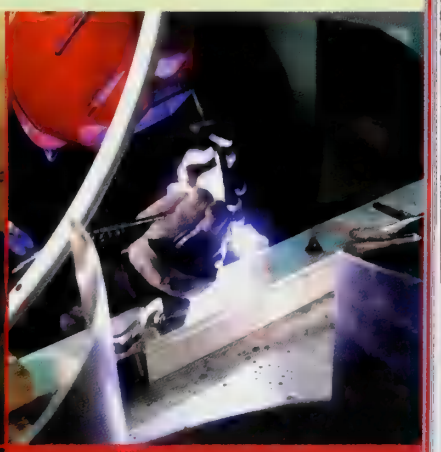
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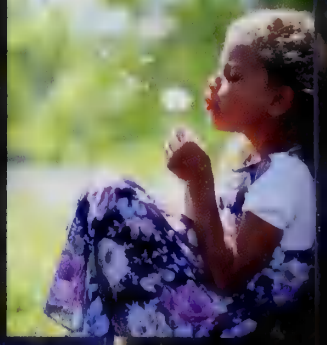
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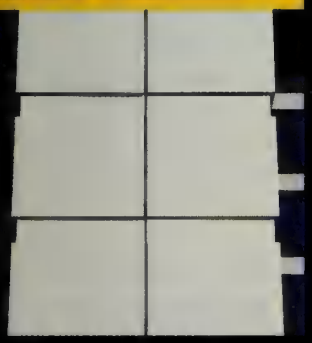
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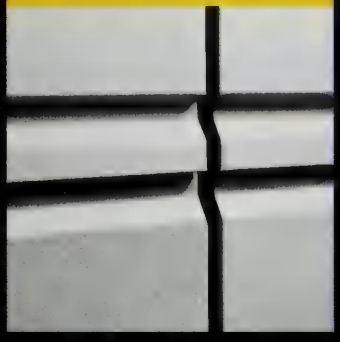
Option
Integrated C/S Louvers



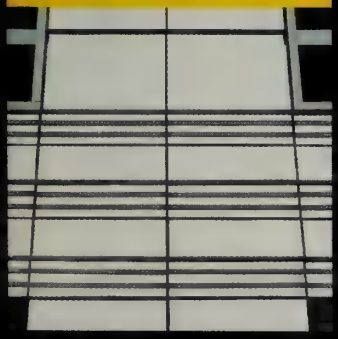
Option
Variable Reveals



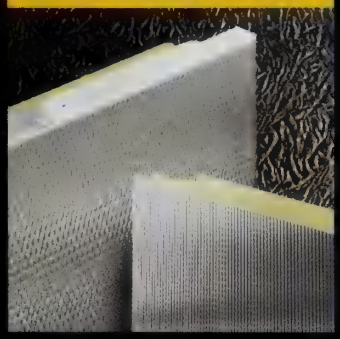
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Letters

WTC engineer speaks

Architects from all over the world, both friends and strangers, have sent messages of support and thanks to the structural engineering teams that worked on the World Trade Center design. The phone calls, e-mails, and messages on our Web site all had the same theme: "The towers performed better than anyone could have expected and, by avoiding immediate collapse, thousands of lives were saved." We want to thank all of you for your encouragement. Yes, the work of John Skilling and Les Robertson, and the engineers they led 35 years ago, did save lives.

However, both our anguish and anger still burden us like a heavy weight. Our hearts go out to all who have suffered losses to this evil brought upon our country. Structural engineers dedicate their careers to trying to keep people in buildings safe from all forms of natural hazards. The feeling of helplessness is gut-wrenching when watching a very unnatural hazard like this cause so much pain, suffering, and loss of life.

Since the demise of the towers, every kind of print and broadcast media has contacted us asking for interviews. At last count, these requests numbered more than 60. A frequent question was, "Does this mean the end of high-rise buildings?" Or, "Do we need to change the way buildings are designed?" Both of these questions indicate a lack of understanding about what we have witnessed in the World Trade Center attack.

The fact that the towers survived the initial attack hid the reality that virtually all buildings would collapse immediately when hit by a 767. There is no technology that would allow our buildings to be subjected to this kind of hazard and survive. Pursuing the idea that "hardening" our buildings will solve this problem is a dead-end street. Even if some miraculous new technology were invented to harden our buildings, what would we do with all of our existing buildings? Tear them down and replace them with bunker buildings? What about the other places where large numbers of people gather, such as concert halls, sports facilities, or churches? Do we abandon these?

The problem we are dealing with in this case is not design shortcomings in buildings … it is the security of airplanes. And that's the good news, because that problem has a much greater chance of being solved. It will be solved.

While improving airplane security will not eliminate the overall problem of terrorism, it can remove this one newly discovered weapon from the arsenal of evil.

—Jon Magnusson, P. E.
Chairman/CEO
Skilling Ward Magnusson Barkshire
Seattle, Wash.

Put the trivial in perspective

Architecturally and culturally, this is clearly the end of the era of hyper-inflation of image, surface, and the blurring of architecture with fashion, shopping, and other popular enthusiasms. This was the finale of Prada



and Isseye Miyake as matters of significance for architecture. In the context of this monumental tragedy, who cares about the superficial and fashionable? There will be a return to basic issues of architecture as structure, mass, and space. For a long time, Le Corbusier's reminder to architects about "mass" was superceded by "surface." The Muschampian obsession with architecture as an entirely personal, narcissistic, self-analytic pursuit now appears repulsive in the face of the obligations of public building.

This was a rude awakening: Reality is not an illusion on a computer screen. Despite the flirtation of architecture with cosmology, chaos, and string theory, kicking a building will really make it fall down and kill people. We need less esoteric philosophy and more thought about how human beings and architecture interact in the real world. This is the end of the virtual, an event of climactic finality that has literally hit architecture with such impact as to remind us with brutal force of what it is all about.

—Alexander Gorlin, AIA
New York City

Of noses, faces, and spite

As an architect and a humanitarian, I'm very worried about the notion of rebuilding the massive towers. Can't we still see that tall buildings are easy targets for attacks? And, as we all saw, it only took an hour for a massive graveyard to be created.

Planning and building safe dwellings for human beings should be the first priority of architects, engineers, and cities.

What we've witnessed in the political discussion and the media coverage of this tragedy is that it's all about the ego of the creators of such landmarks, as such massive buildings are sculptures or symbols of power and superiority. If only we could overcome our inflated egos. I suggest we start a campaign to raise dialogue and awareness on this matter.

—Ozlem Paker
Via e-mail

Free to charge no fee

I'm sure the whole architectural community is waiting to see how many of the elite architects who have graced the covers of one of our few architectural magazines, and who may never have to work another day in their lives (thanks to "Bilbao"-like commissions) will band together and offer to design and produce construction documents for our new state-of-the-art World Trade Center replacements. The pride you'll feel in patriotically contributing your time and skills to design, and subsequently build, these new "memorial" buildings should be compensation enough. Shame on your American selves if you accept a dime in return!

—Anthony Wilkins, Intern-Architect
Virginia Beach, Va.

Rooms with views no more?

The sight of the south World Trade Tower crumbling down brought this feeling to my gut: This is the death of the skyscraper.

The lingering aftereffects for architecture may become evident as corporate clients no longer desire the physical manifestation of American might and prosperity. Forget ever-taller buildings. They'll want to stay closer to the ground!

These types of cataclysmic events alter cultures permanently. It's a sure bet that the era of the skyscraper will now have a solid end date in future history books.

—Toby Weiss
Via e-mail

Corrections

In the Summerset at Frick Park [JULY 2001, PAGE 37] development, LaQuatra Bonci Associates completed the master plan after an initial planning process that included Cooper, Robertson and Partners and Urban Design Associates. Looney Ricks Kiss (credited in the story with developing the master plan) was responsible for architectural design of the houses.

E-mail letters to editor-in-chief at rivy@mcgraw-hill.com

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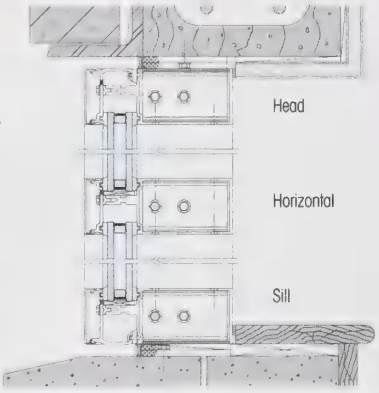


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Dates & Events

New & Upcoming Exhibitions

Monuments and Memory
Washington, D.C.
September 29–January 13
A timely showcase regarding the memory of nationally significant events and the designs which help create and maintain these memories. Washington-based architects exhibit competition entries for various war memorials, in addition to hypothetical projects. At the National Building Museum. Contact 202/272-2448 or see www.nbm.org.

Mathematica
San Francisco
October 6–May 5
This Eames-designed exhibit from 1961 showcases mathematics as both a science and a tool for art. Revisited forty years later, it remains the only Eames exhibit still in existence. Other Eames designs on display include toys, home electronics, and lesser-known furniture. At the Exploratorium. Contact 415/563-7337 or see www.exploratorium.edu.

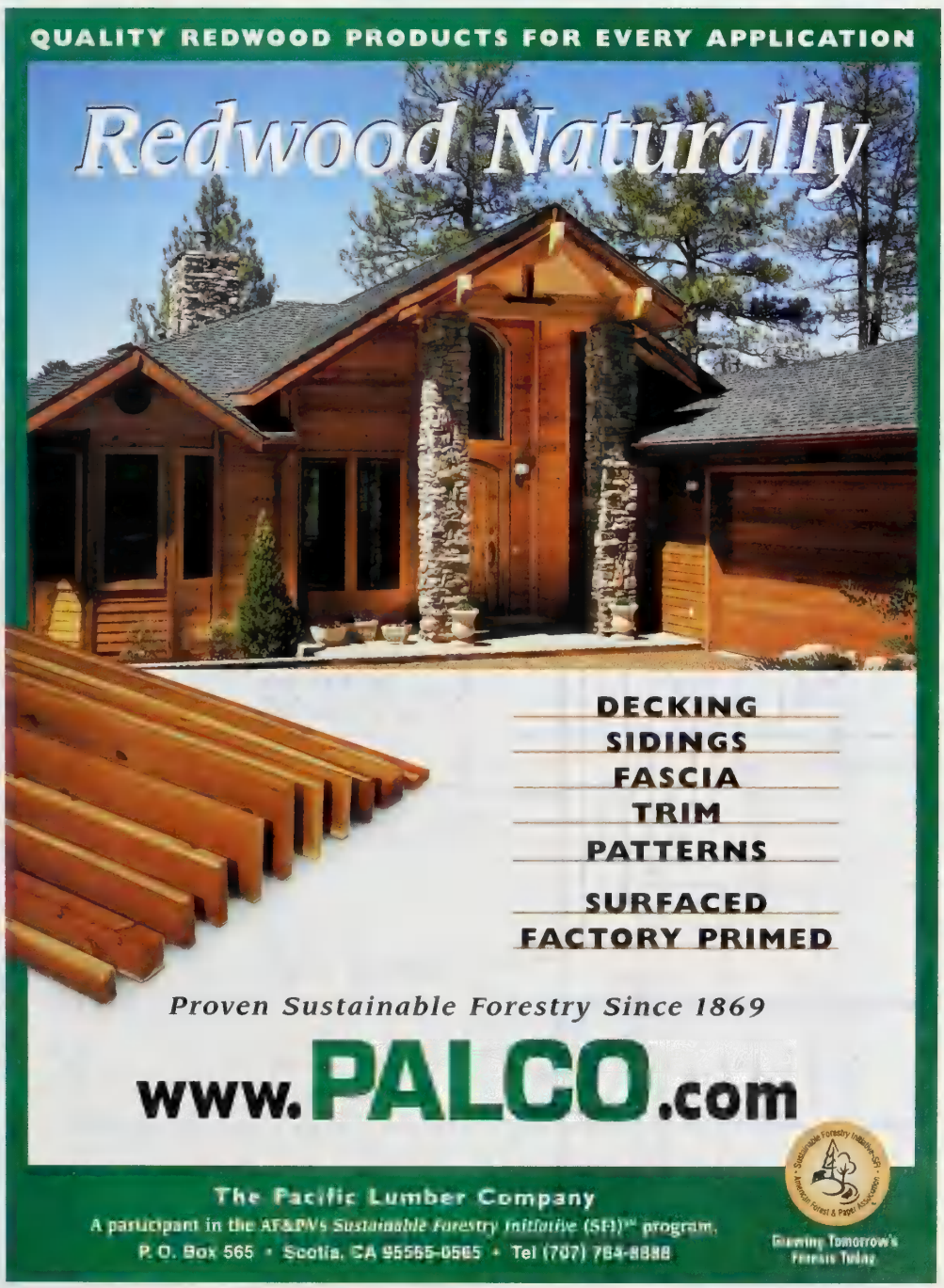
Nova Scotia Architect: Brian MacKay-Lyons—An Exhibition
Chicago
October 9–November 1
A traveling exhibition that explores the inventive work of this Canadian-born architect. The opening will commence in Chicago with a lecture from the architect entitled, "Stewardship." Graham Foundation. Contact 312/787-4071.

The Chicago Bungalow
Chicago
October 18–January 15, 2002
This exhibit offers a kaleidoscopic look at 20th-century life in urban America as viewed though the architectural and social history of the Chicago Bungalow, via photos, memorabilia, and samples of decorative arts. At the Chicago Architecture Foundation. Contact 312/922.3432 or see www.architecture.org.

Ongoing Exhibitions

On Movers and Shapers
New York City
Through October 13
Through photographs and video installations, artists Ines Schaber and Jorg Stollman track and document the affects of landscape design in desert Arizona. The subtle presence of cacti signify huge efforts of mobilization, carefully detailed in this show. At the Storefront for Art and Architecture. For more information contact 212/431-5795 or e-mail info@storefrontnews.org.

Alternative Architecture: The Work of Allan Wexler
Buffalo
Through October 27
Exhibits the work of this unconventional artist/architect whose designs explore the relationship between the applied arts and fine arts through highly unusual, small-scale works of architecture. Other artists will be included in



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the show, as well. At Hallwalls Contemporary Art Center. Accompanying lecture by Wexler to take place on September 15, at the Albright-Knox Gallery. Contact lamarche@buffalo.edu.

From Arts and Crafts to Modern Design: The Architecture of William L. Price
Washington, D.C.
Through March 24
The first retrospective of the architect's thirty-year career features original drawings and furniture designs. Projects include luxury hotels in Atlantic City, midwest train stations, and private residences. At the National Building Musuem. Contact 215/898-7798.

Cesar Pelli: Connections
Washington, D.C.
Through April 28
One of the most comprehensive retrospectives on the life and work of distinguished architect and AIA Gold Medalist Cesar Pelli. Through photographs, photo murals, more than 100 drawings, and 30 original models, the show will explore over a half century of his career, culminating with his most recent work. At the National Building Museum. Contact 202/272-2448.

The Architecture of the American Craft Museum
New York City
Through January 13
An installation of a model of the newly designed building by architects Tod Williams/Billie Tsien and a photo essay documenting the construction process, from ground breaking to near completion, of the museum's new site at 45 West 53 Street. Contact 212/977.7170 or see www.folkartmuseum.org.

Perfect Acts of Architecture
Pittsburgh
Through January 6
Features more than 140 drawings and collages on the architectural meditations of architects from the 1970s and '80s, when design was highly theoretical. Includes the work of Rem Koolhaas, Bernard Tschumi, Peter Eisenman, Daniel Libeskind, and Morphosis. At the Heinz Architectural Center. Contact stitelert@carnegiemuseums.org.

Lectures, Symposia, & Conferences

Design + Architecture 2001
Miami
October 1–30
Beginnning on the first of the month with D+A day, this event features a variety of exhibitions, tours, open houses, workshops, and lectures along the Florida Coast. The event is part of a community-wide effort to raise awareness of the impact of design and design-related fields in the immediate community. Visit www.designandarchitectureday.com.

Design Matters: Best Practices in Affordable Housing
Chicago
October 22–23
A symposium dedicated to promoting the idea that residential design can be both affordable and of high quality. Issues to be addressed include construction cost containment, energy and resource efficiency, and alternative materials and methods. At the University of Illinois College of Architecture and the Arts City Design Center. Contact 312/996.2076 or go to www.affordablehousing.aa.uic.edu.

Architecture Now!
New York City
October 30
A discussion by Tod Williams and Billie Tsien with Philip Jodido regarding the enthusiastically titled publication. Featured work includes architects Jakob and MacFarlane, Diller and Scofidio, Asymptote,



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Dates & Events

Meier, and Williams and Tsien, and investigates current influences on current architecture. At the Cooper-Hewitt, National Design Museum. Contact 212/849-8380 or see www.si.edu/ndu.

Less is More: Tenth International Symposium of Architecture
Monterey, Mexico
November 2
A symposium featuring Ken Yeang, Manuelle Gautrand, Rodolfo Machado, Francisco Serrano, and Alberto Kalach. Part of the University's 55th anniversary. At the Universidad Autonoma de Nuevo Leon, Facultad de Arquitectura. Contact 011 52 83 76 26 00 x111 or facarq@ccr.dsi.uanl.mx.

Abitare Italia
New York City
November 4–7
A four-day symposium in decadent celebration of Italian furniture design. For quality assurance, it begins with scholarly discussions on the history and impact of Italian design before a 20% discount on the products ensue. Lectures at the Italian Trade Commission and the Italian Cultural Institute. Shopping at participating showrooms. Contact 212/353-1383 or see www.abitareiatlia.com.

Architecture in the Form of Dialogue: Fourth International Architecture Symposium
Pontresina, Switzerland
November 12–14
A three-day symposium dedicated to the discussion of media, politics, mobility, and architecture in the coming century. Sponsored by the British Council, the forum features an interdisciplinary panel of internationally known architects, theorists, and city planners, including Will Alsop, Wolf D. Prix, Maxwell Hutchinson, and Hani Rashid. Contact 011 41 81 838 83-18 or visit www.archisymp.com.

Tours

Charleston's 25th Annual Fall Candlelight Tours of Homes and Gardens
Charleston, S.C.
Through October 27
Hosted by the Preservation Society of Charleston. Each tour highlights a different neighborhood. Contact 800/968-8175 or preserve@preservationsociety.org.

The Art and Architecture of Bilbao and Barcelona
October 12–19 and October 19–26
Hosted by Archetours, this tour examines the fascinating works of Gaudî to Gehry and many other greats in between! Contact 800/770-3051 or info@archetours.com.

Sicily: Archaeological and Architectural Splendors
November 10–20
Hosted by Archetours, the tour combines luxury and learning about Greek, medieval, and even Art Deco architecture. Contact 800/770-3051 or info@archetours.com.

Conventions

Build Boston
Boston
November 13–15
Brings together over 350 suppliers of building products and services and more than 11,000 architects, engineers, specifiers, contractors, facility managers, and other networking specialists from all over the world. At the World Trade Center Boston. Contact 800/544-1898 or visit www.buildboston.com.

Competitions

The City of Wildwood
Deadline: October 12
Soliciting designs for a new bicycle and pedestrian overpass that will serve as a connection in Wildwood,



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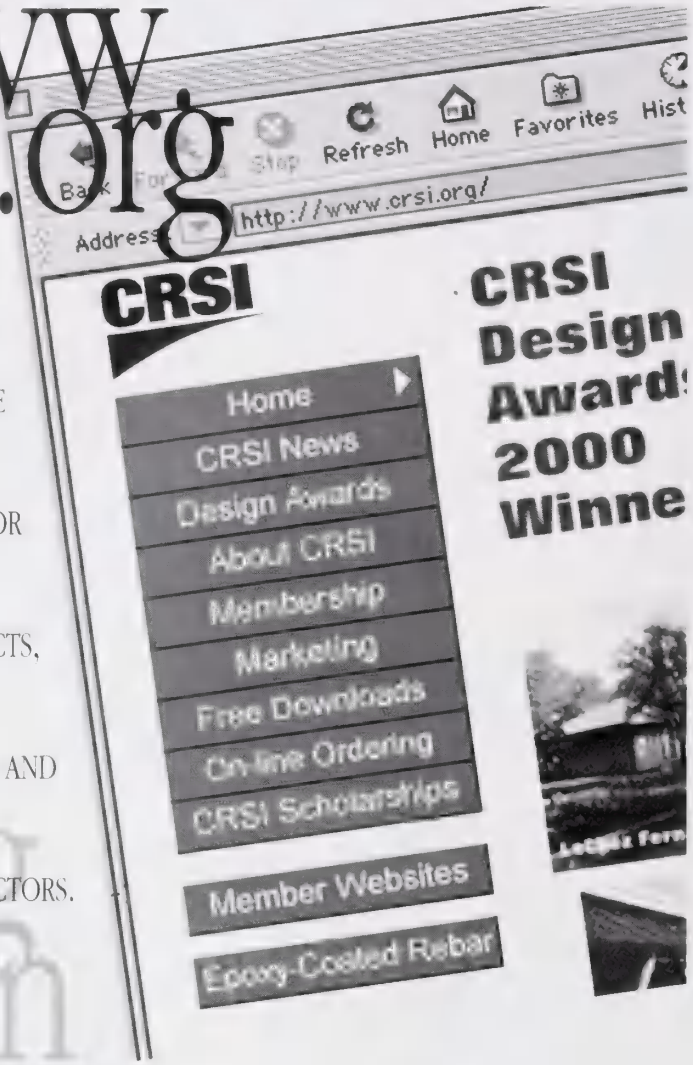
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Dates & Events

Mo., between the most populated areas and the town center. Team or individual entry. Contact 636/458-0440 or mcfinearts@earthlink.net.

Architecture for Natural Disasters
Deadline: November 14
Seeking exemplary temporary and permanent architecture that prepares for or responds to natural disasters. Sponsored by the Takiron Company in Japan. Contact 011 81 3 3818 1961 or fax 011 81 3 3818 6742.

The Rome Prize
Deadline: Novermber 15
Qualified architects, designers, landscape architects, composers, scholars, and visual artists are invited to apply for this prestigious award that includes spending six months to two years in Rome. Visit www.aarome.org/ for more information.

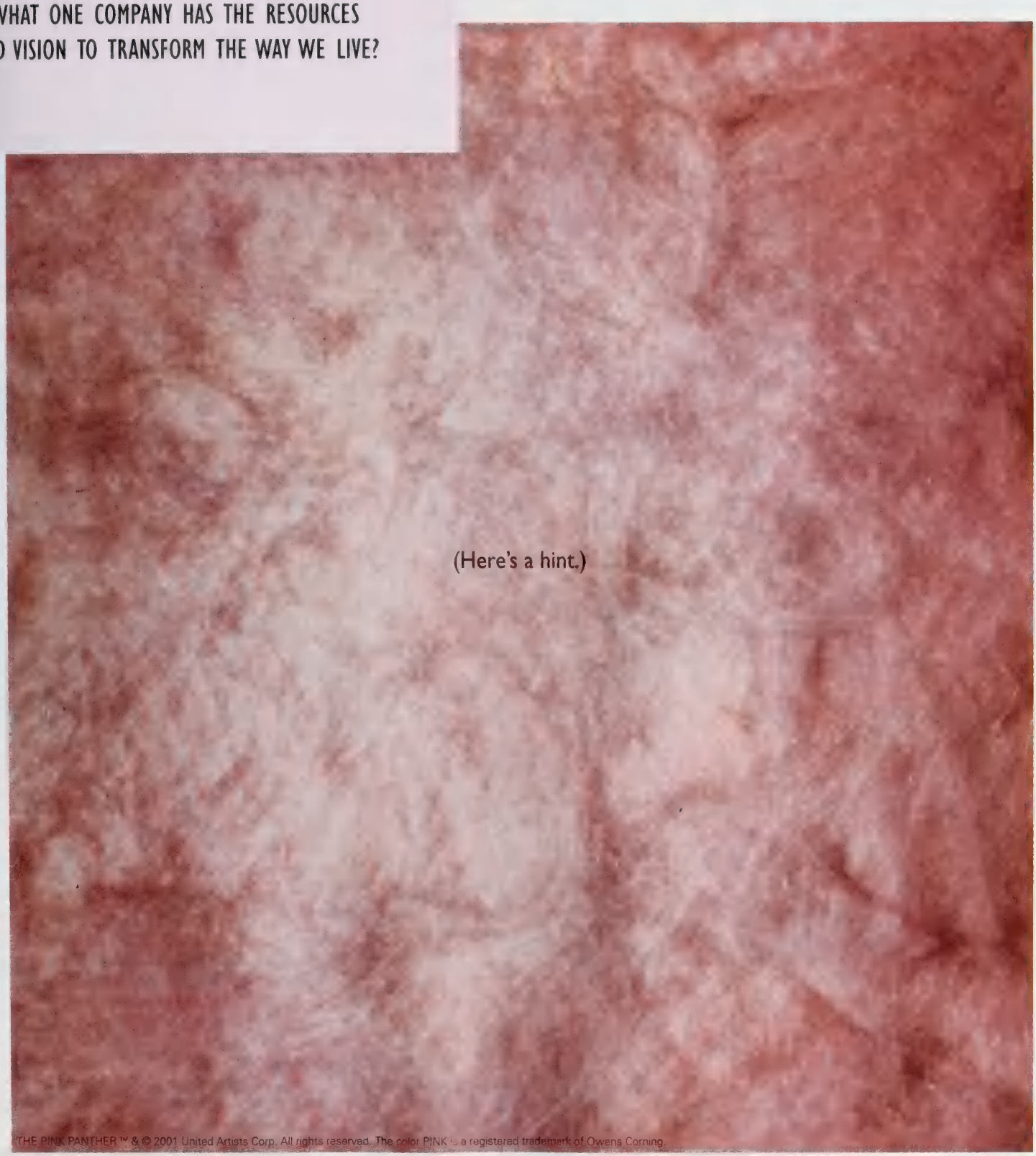
Jenn-Air Kitchen Competition
Deadline: December 28
Only new or remodeled kitchens that exclusively use Jenn-Air major appliances are eligible. A $10,000 cash prize and a trip to Milan are offered. Contact 612/375-8541 or vmelen@clynch.com.

The NCARB Prize
Deadline: February 1, 2002
In a direct attempt to bring together the academy with professional practice, the National Council of Architectural Registration Boards offers a grand award of $25,000 for a fall 2001 term project that demonstrates this integration. For an entry packet, contact 202/879-0535 or Mbourdrez@ncarb.org.

Percent for the Arts: Bus Shelters
Deadline: February 15, 2002
The Bloomington Community Art Commission seeks proposals for three new bus shelters to be installed throughout the city. The award includes $2,500 for each of the winning designs. Contact BloomingtonArt@aol.com for a brochure.

E-mail your submissions for Dates & Events two months before the event to ingrid_whitehead@mcgraw-hill.com.

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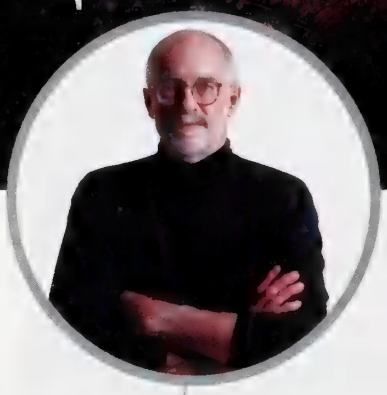
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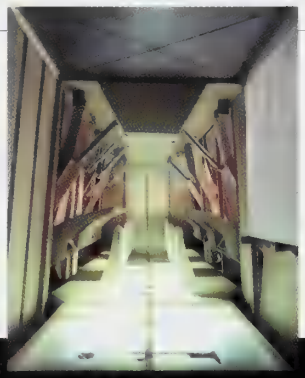
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For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

One hallmark of the younger generation of architects is that they are always looking toward the future: experimenting and theorizing and trying to make the world a better place. A noble calling even in the most normal of times, but especially important as architects think about remaking the world after a crisis. This month, archrecord2 looks at two young architects in the vanguard of mobile design and of "green" architecture. And, as always: Design, Work, Live, and Talk.



DESIGN

Jennifer Siegal: The New Nomadism



The road, so to speak, from the Oscar Mayer Wienermobile to the iMobile—which, at its most basic level, is a computer lab on wheels—would seem to be a long and winding one. But a look at the career path of Jennifer Siegal, the founder and principal of Los Angeles' Office of Mobile Design, leads squarely back to frankfurters.

"My grandfather was a hot-dog salesman in Coney Island," Siegal says, "and I was also a hot-dog salesgirl when I was going to SCI-Arch." Siegal bought a cart while she was earning her master's degree from the Southern California Institute of Architecture, and her profits helped pay for her degree. More importantly, though, working as a peripatetic entrepreneur influenced Siegal's design thinking. That experience, combined with several years of travel in the U.S. and abroad, gave Siegal an increased awareness of the nomadic nature of societies, especially in Southeast Asia.

"In my travels, I also became aware that I needed fewer and fewer things," Siegal says. "Becoming light on my feet became a sort of way of life for me, and it seemed that the paring down of my lifestyle was reflective of what was happening for a lot of people in my generation."

While traveling, Siegal taught at several universities, and she began developing her ideas in design/build studios with her students. Eventually, she returned to Los Angeles and began teaching at Woodbury University. She founded the Office of Mobile Design in 1998. Siegal had already begun to build and write in conjunction with her teaching, and the resulting recognition helped her firm win its earliest commissions. Work began to arrive.

"I guess it's like any small firm," Siegal says. "You get recognized for one thing and then you start to gain momentum. We actually launched our Web site, www.designmobile.com, and that



iMobile, unbuilt, 2000
Office of Mobile Design. The iMobile is designed to showcase new computer hardware and software or to provide computer access to schools, rural areas, or other locations where it would not otherwise be available.



Portable House, mobile, 2001
Office of Mobile Design. An update on the mobile home, but actually based on the structure of portable classrooms. A prototype is currently under construction at a California factory.

PHOTOGRAPHS AND RENDERING: © OFFICE OF MOBILE DESIGN

helped us gain a lot of recognition, too."

Siegal won the commission to design offices for the online "extreme sports" retailer PIE.com in large part because of her mobile emphasis. Siegal says that without being "overtly obvious, and using surfboards and sailboards and things," she tried to emphasize "speed and movement and light." The result is an office full of curving dividers and a central spine overhead that serves as a cable tray, bringing network connections to the scattered computer stations.

Aside from PIE.com, however, Siegal continues to focus on mobile architecture. Current and recent projects include a display and service kiosk for electric bicycles and a portable house, which is based on the structural system of a portable classroom, built with environmentally-friendly materials such as Plyboo bamboo flooring and recycled newspapers. The portable house is meant to appeal to people with transient, minimalist lifestyles who still have a good sense of design.

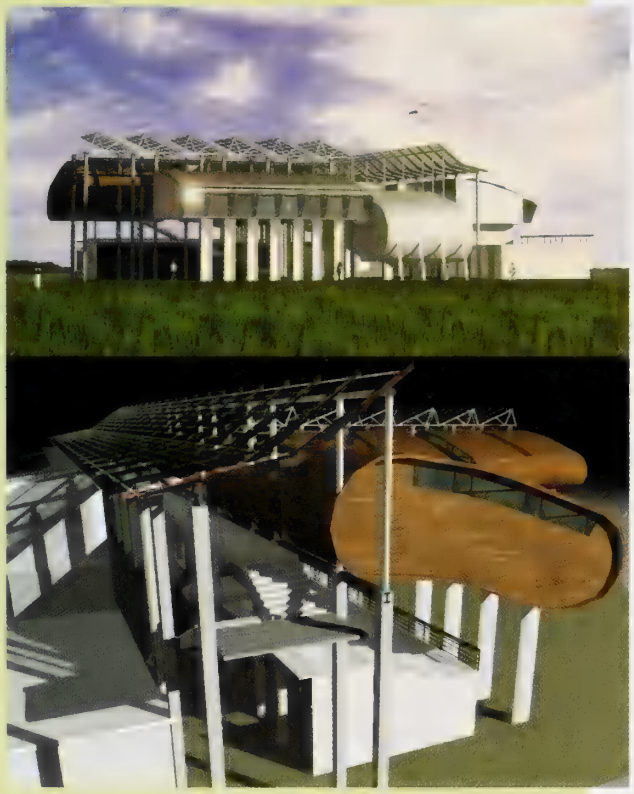
And while the iMobile may not be the Wienermobile, Siegal has not completely abandoned hot dogs. She may even design a better hot-dog cart. "Actually," she said, "that's a really good idea." *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 for more on Jennifer Siegal, including other projects, and to submit your own work.





PIE.com offices, Hollywood, Calif., 2000
Office of Mobile Design. The interior design for the offices of this "extreme sports" retailer emphasize speed and movement.



WORK

A competition for a green campus

Diligent programming and a sensitivity to detail and sustainability have won Apurva Parikh first prize for his design for an agricultural education building in this year's Leading Edge Student Competition for Sustainable Design. Parikh is a master's candidate in the University of Texas at Austin's architecture program.

As the first building for Tulare County's new agricultural campus center in California, the design invokes the region's agricultural machinery, landscape, and climate by allowing the wind, sun, and rain to shape its forms. Hovering, kidney-shaped lecture halls allow wind to filter through the structure, while angled glass panels diffuse sunlight into the classrooms and exterior corridors.

"The building is essentially porous to the wind and sun," says Parikh. "The elements penetrate deeply into the structure, reducing the building's dependence on air-conditioning and artificial lighting." The building's membrane also facilitates the production of heat and cooling through active mechanical systems imbedded into the structure, demonstrating that sophisticated planning can produce lasting efficiency. *Christina V. Rogers*

Go to architecturalrecord.com/archrecord2 for more on this competition.

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Designer: Mayan - Unknown
Product: Handhewn Stone

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21ST CENTURY SUBSTRATE

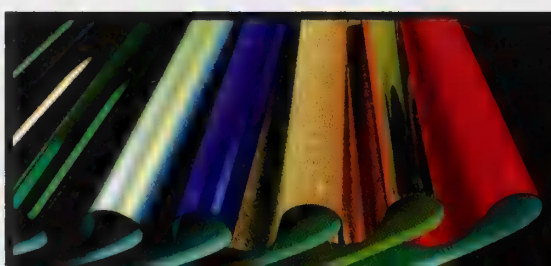
Project: Janeway Children's Health & Rehabilitation Center, Canada
Architect: Health Care Consultants
Fabricator: Vicwest, Canada
Product: ALPOLIC/fr Custom Champagne Metallic

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Competition demonstrates how mixed incomes can coexist

Correspondent's File

By Rosemarie Buchanan

As many competitions do, Chicago's competition for a mixed-income housing redevelopment was filled with brazen optimism tempered by a shot of reality. Brian Healy Architects of Boston was named the winner in late August, but it is not certain if the Chicago Housing Authority (CHA) will build his design.

The City of Chicago and the CHA invited seven architects—four chosen outright and three selected from 118 contestants—to tackle a heady proposition. The competition program called for the design of housing on a vacant square block on Chicago's West Side to accommodate three income levels: market-rate, affordable, and low-income subsidized housing. The housing block, with density between 28 and 38 units per acre, was to be crafted so the three income levels would be indistinguishable from the outside. All three unit types had to be distributed evenly across the development, providing one third for each income group, and every unit had to have its own entrance to the outside—in other words, no common entrance. The "redevelopment requires that . . . public housing no longer is visually stigmatized as the poor man's house," the competition's original grant proposal stated.

The competition site was an eight-acre block in the ABLA neighborhood—a conglomerate of four separate public housing developments built between 1937 and 1962. The district is subject to a master plan now being reviewed by the Department of Housing and Urban Development (HUD). The site borders Roosevelt Road, the University of Illinois at Chicago, and a rapidly gentrifying area of the city where lofts and condos sell for between $300,000 and $500,000. With two HOPE VI HUD grants totaling $59 million awarded to ABLA in 1996 and 1998, the city appropriates $140,000 to construct each affordable unit and $106,000 for each CHA unit.

Rosemarie Buchanan is a Chicago-based journalist who writes about architecture. Her articles appear frequently in the Chicago Tribune.

Seven entrants

Competition entrants included four preselected architecture firms: Shim-Sutcliffe Architects of Toronto; Garofalo Architects of Chicago; Coleman Coker of Memphis; and Stanley Saitowitz/Natoma Architects of San Francisco. The three selected from the open competition were Healy; 3D Design Studio of Chicago; and the Chicago-based team of Wheeler Kearns Architects with Roberta Feldman and Xavier Vendrell. Garofalo Architects won an honorable mention.

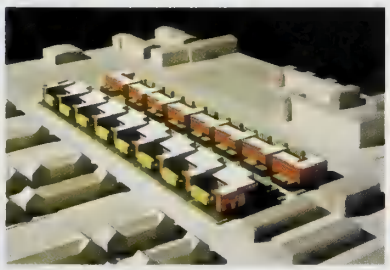
The jury, which judged proposals anonymously, included Howard Decker, FAIA, chief curator of the National Building Museum; Stanley Tigerman, FAIA, principal of Tigerman McCurry Architects; Deverra Beverly, ABLA local advisory council president; Reed Kroloff, editor in chief of *Architecture*; developer Ken Rice; Lamarr Reid, AIA, principal with Perkins and Will; landscape architect Ted Wolff; Daniel Levin, president of the Habitat Company; Katarina Reudi, professor and director of the University of Illinois at Chicago School of Architecture; and Randy Jefferson, AIA, principal with Gehry Associates.



The winning design by Brian Healy Architects.

Each entrant received a $20,000 honorarium, and Healy received an additional $15,000 and the possibility of negotiating with a developer to have his design constructed. Healy's design was based on a "typical Chicago block"—he cited the 19th-century pattern of the streetscape and alley system as the infrastructure. Parking ran underneath blocky, 25-foot modular units. The design took Modernist principles, such as a gridded layout, and teamed them with a vernacular vocabulary. Stating that an "overreliance on symbolism is a bad thing," Healy decries the label "modern" to characterize his proposal, preferring to describe his project as "a warehouse, something that avoids pastiche." Juror Lamarr Reid said Healy's design was by far







Competition entries by (from left) Stanley Saitowitz/Natoma Architects, Shim-Sutcliffe Architects, and Doug Garofalo.

PHOTOGRAPHY: COURTESY THE ARCHITECTS

Correspondent's File

the most buildable and feasible. "We're confident this (design) can be followed through, and it engages the street," Reid said.

Doug Garofalo's design wove apartments into ribbed, undulating, and bargelike clusters of concrete, brick, and glass on pilotis, and incorporates the potential for home businesses. In his design statement, Garofalo wrote that he counterbalanced the "individual nature of domesticity" with the "standardized, repetitive building practices." The jury awarded Garofalo an honorable mention, according to juror Howard Decker, as a nod to his ingenuity.

Shim-Sutcliffe divided the site into a linear two-third, one-third proportion with a path stretching down the middle. Arrangements of different size apartments and courtyards created a rhythm, and Jenga-like units interlocked around each other to mask where one ends and another begins—blurring the ability to discern one income level from another. Brick-clad clusters formed a line of defense against Roosevelt Road, a common feature of many designs, topped with a ramplike roof.

Coleman Coker's creation had parking under linear housing clusters. The facade treatment vaguely resembled Karl Ehn's Karl Marx Hof in Vienna. Stanley Saitowitz's more insular urban village was designed to value "simplicity and regularity over complexity." Saitowitz implemented two corridors to divide the rectangular-shaped block into equal thirds, and he used glazing to diminish the distinction between the clean-lined domestic space and semiprivate courtyards.

Wheeler Kearns with Feldman and Vendrell encircled the block's perimeter with apartment clusters and based their plan on the existing street and alley system. Balconies were designed to stretch and overlap units to encourage neighborly interaction. This team interpreted its design as respectful of "Chicago's urban pattern, yet resist(ing) the insularity of the private lot."

3D Design Studio's submission was the only one to bisect the square block laterally. Each of its housing clusters resembled an extenuated townhouse, tall and narrow. Its design intent: "to disintegrate the superblock."

According to Lee Bey, deputy chief of staff for Mayor Richard M. Daley and a former architecture critic for the *Chicago Sun-Times*, and Denise Arnold, AIA, competition director, it is uncertain if the housing will be built as Healy designed. Once HUD approves the neighborhood master plan, the city will publish an RFP for developers to develop the entire site. The developer will determine whether Healy's design, or that of another architect, will be built. ■



Entries by (from left) Wheeler Kearns Architects, 3D Design Studio, and Coleman Coker.



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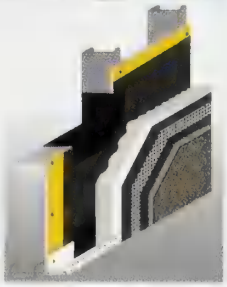
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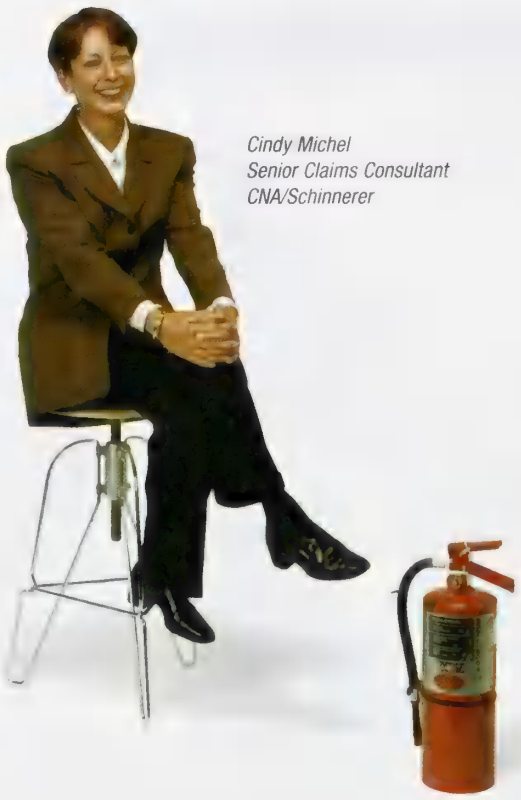
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CIRCLE 41 ON INQUIRY CARD

Having trouble understanding what the architectural cognoscenti are saying? You're not alone.

Critique

By Robert Campbell, FAIA

I treasure them. They are collector's items. They are the gems of architectural prose. Of ArchiSpeak.

Here is one: *These distortions elicit decipherment in terms of several virtual constructs that allow the house to analogize discourse and call for further elucidation. These constructs are continually motivated and frustrated by conflicts in their underlying schemata and the concrete forms in which they are inscribed.*

Notice the 14th word. It's the only clue that the author is talking about a house. This author was, at the time of writing, a teacher of beginning students at a major school of architecture. One's heart goes out to the students, who came to school to become architects and instead were faced with a buzz-saw of incomprehensible babble.

Loved that one? You ain't heard nothin' yet. Try this: *The work of Diller + Scofidio is situated between 'inscription' and 'prescription' and architecture of 'description' concerned with the hyper-present. Though description is commonly understood to be recapitulation, passive and uncritical, here, it is employed actively, as intervention. By articulating the culturally loaded spaces of and between surfaces and foregrounding their relations, those relations necessarily become disrupted.*

A Zen master would flip. Anyone can hear the sound of one hand clapping, but who can articulate a culturally loaded space?

I'm not the only one who collects these gems of pretentious illiteracy. Someone recently slipped me an anonymous list, entitled "Words Actually Used and Heard at the GSD"—the GSD being Harvard's Graduate School of Design. The list is comprehensive, as befits a work of Ivy League scholarship. It contains 105 items. A sample:

Adornian referent, fractured embodiment, graphic transubstantiality, semiotic traceable referents, synchronistic experienciality, hypernormative discourse, hyperspatial dislocations . . .

The GSD is my alma mater, and I'm grateful for its rich outpouring of ArchiSpeak. The following example was mailed to me by a team of GSD students who had just won a competition to design new mailboxes for the school. The document, entitled "Reinventing the Mailbox," runs to three pages. I quote:

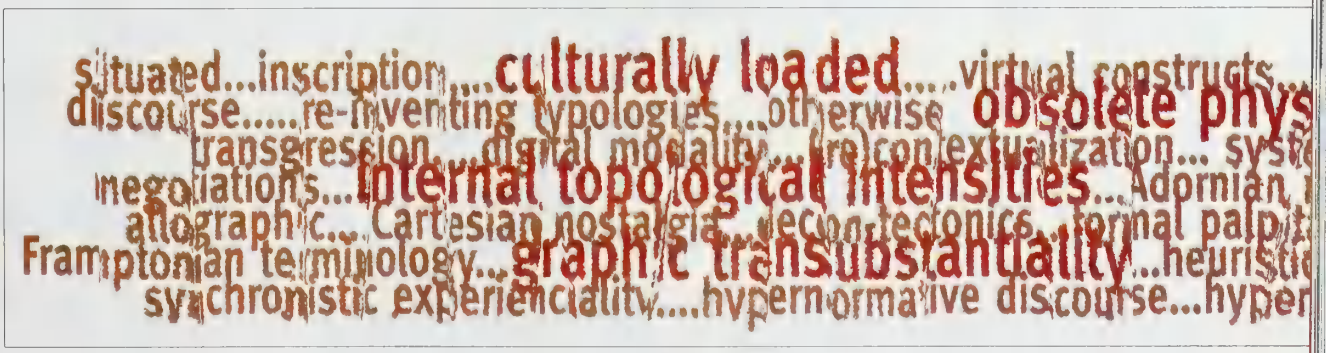
The project deploys and intertwines formal and digital modalities . . . In two intertwined but separate processes, both modalities seek to develop a hyper-functional relationship with the 'primary code,' their internal design logic; they subsequently, undergo a process of (re)contextualization, through a series of systematic negotiations of local conditions. These processes generate/explore unique topologies.

Where do bright students learn to write gibberish? Guess. Here's an excerpt from the brochure of another school of architecture: *A coherent and differentiated spatial paradigm overlays both the natural and historical determination of places and the homogeneous construction of modern space. Such changes in the nature of contemporary space give rise to the replacement of a long-lasting epistemology of conservative systems by non-isolated, complex models that approach reality as an unstable set of vaguely delimited locations crossed by flows of energy and matter.*

It is possible to work out what this author means, more or less. He just has no idea how to say it.

Unfortunately, many of us are intimidated by ArchiSpeak. Intimidation may, in fact, be the author's goal. In the dim recesses of my past, I was a Phi Beta Kappa English major at Harvard. It's a background that encourages me to believe that if I can't understand what a writer is saying, it's probably the writer's fault and not mine. No less an intellectual than Ludwig Wittgenstein wrote that anything that can be thought about can be expressed clearly. Why do architects so often envelop themselves in fog? Maybe because:

- Turgid writing is the expression of turgid thinking. ArchiSpeak usually means the author simply hasn't thought things through. If you write clearly, you've probably also thought clearly. If you've thought clearly and you still write ArchiSpeak, you're most probably showing off.
- Architecture schools are usually lodged in universities. This leads the architecture faculty to trust the fantasy that architecture, like philosophy and other university subjects, is principally an intellectual activity. It isn't. Its excellence is of a different kind. (I didn't say architec-



Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic for the Boston Globe.

ture isn't intellectual, I said it isn't principally intellectual.)

• Architects, especially academics, may feel they're so smart they don't need to master the technology of writing. But that technology must be learned like any other. In writing as in architecture, there is such a thing as clarity and rigor of design and detail. We architects demand those qualities in our designs. But we ignore them in our writing as we massacre syntax, chop-shop metaphor, and reach for exactly the wrong polysyllabic word.

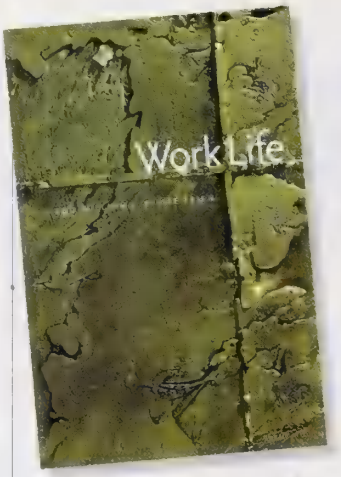
Why should anyone care? Maybe because:

▪ Many of the ArchiSpeakers have something to say, if we could only figure out what it is. And life would be more fun if we didn't have to swim in verbal glop.

• ArchiSpeak leads young architects to believe they must reinvent themselves as members of a cult, a cult with a private lingo the public can't understand. (Not to mention those black uniforms.) They'd be wiser sticking to common English. Frank Gehry, who never emits ArchiSpeak, once told me students would be better off reading novels than architectural theory, because they'd learn something about men and women.

• ArchiSpeak makes people think they are smarter than they are (when they write it) or stupider than they are (when they can't understand it). Either way, ArchiSpeak is doing harm. Mastery of gobbledygook is not a sign of intelligence.

And finally. Sooner or later, architects (and planners and landscapers and urban designers) must convince someone to hire them or at least bless them with a grant. Such benefactors like to believe that architects live in the same world they do. Nobody is going to trust a dollar to a pompous twit. ■



Books

Work Life: Tod Williams Billie Tsien, *edited by Hadley Arnold. New York: Monacelli Press, 2000, 264 pages, $60.*

The trend these days is for architects to stuff their monographs to the bursting point. Too much design ain't never enough. Gotta have 500 pages or more. Gotta weigh a ton. Not surprisingly, Tod Williams and Billie Tsien have taken a different approach to the first book on their work. Even the proportions of the book are different. Square and blocky is in right now. Theirs is tall and thin.

Like their architecture, Williams and Tsien's monograph speaks powerfully by keeping its voice low and clear. Instead of showing everything the couple has ever designed, it presents 10 recent projects, ranging in scale from sets for a dance troupe and an installation of Noguchi lamps at a department store to the "scientific monastery" they created at the Neurosciences Institute in La Jolla, Calif., and the new residential college they designed for the University of Virginia. Michael Moran's duotone photographs capture the poetic spirit of the buildings and stand on their own as works of quiet beauty. More drawings, though, would have helped document the projects.

Short chapters show some of the couple's older projects and ones in progress. The book ends with each architect describing the other's contribution to the practice. *Reviewed by Clifford A. Pearson*



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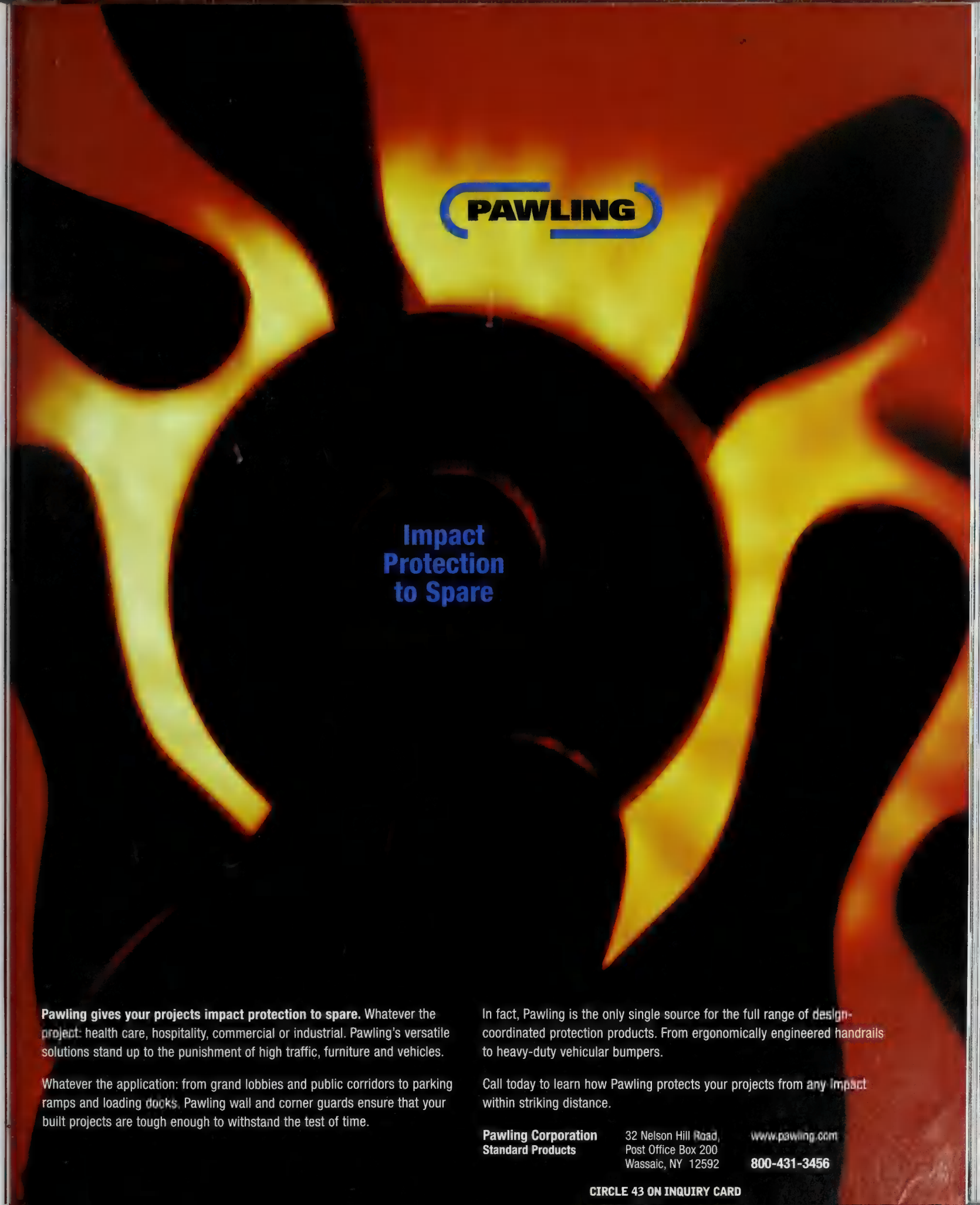
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CIRCLE 44 ON INQUIRY CARD

Snapshot



By Jane F. Kolleeny

And the meek shall rule the earth

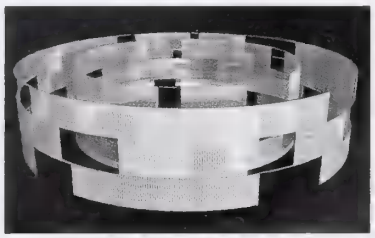
Extraordinary power can be experienced in the most modest of circumstances. Take for example this little church, which conjures up strength and purpose in its simple and flexible design. It also demonstrates an exemplary relationship between architect and community and shows that minimal resources can result in significant community benefit.



If there ever was a church built for and by the people, this is it. Conceived and constructed by the congregation, this 1,200-square-foot structure in the remote village of Urubo, 20 minutes by car outside Santa Cruz, Bolivia, was raised through their blood, sweat, and tears, and donations from Christians in the United States and Bolivia. Made with local, pressure-treated timber and translucent polycarbonate sheets, patterns of light and degrees of shade record the movements of the sun through-

PHOTOGRAPHS: © DANIEL COHN

Snapshot



out the day and mark the times of the year. The building glows within like a luminous egg.

Architect Jae Cha developed a grassroots vision that took eight months to plan but was implemented in a mere 10 days. Cha observed that "well-planned public spaces that meet the needs of a community are often overlooked as a potential means to fight poverty. Charitable contributions may reduce need, but ending poverty requires developing sustainable methods and encouraging a web of community interaction." Indeed, the modest church is multifunctional, serving not only as a gathering place for worship but as a daycare center, a vaccination center, and a public market.

Though Urubo is close to a city, this rural village is peopled by about 150 families who live in mud and straw shacks, traveling by foot or horseback. Since there is no economy in Urubo, most people walk to Santa Cruz for work. Many of the women in the village have no place to take their children when they work. Plans are underway to open a kindergarten at the church where children can be dropped off during work hours. This project, funded by Christian organizations both in the United States and in Bolivia, was organized by Light, Inc., a nonprofit, nongovernment architectural practice founded by the architect.

Jae Cha believes that flexible public spaces like this can provide the physical foundation for economically diverse, self-supported and self-guided communities. "We emphasize independence, rather than dependence, by seeking to create public spaces that offer direct paths to community empowerment and vitality." ■



The patterns of light and dark speak both of transience and of the regularity of the simple rhythms of this archetypal structure.



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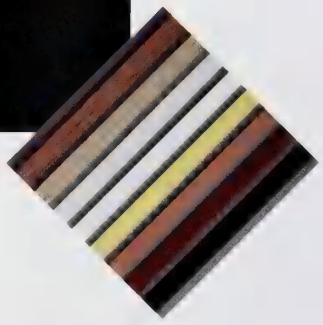
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NEW

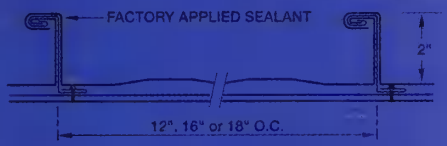
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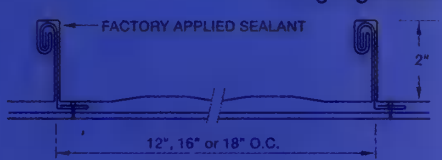




Tite-Loc Plus Panel

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2" high

.032 aluminum
24 gauge steel
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Petersen Aluminum Corporation has added two new structural standing seam roofing profiles to their extensive line of metal roofing products. The new profiles, Tite-Loc and Tite-Loc Plus, have been designed for structural and architectural metal roofing applications and are available in a variety of materials including 22 and 24 gauge steel and aluminum. Both profiles feature factory-applied hot melt sealant to insure weather tight performance. Panels are corrective-leveled during fabrication to provide superior panel flatness. Both profiles feature our PAC-CLAD® Kynar 500 finish, available in 30 standard colors on steel and 22 standard colors on aluminum.

Tite-Loc Panels

Tite-Loc Panels are factory-formed to length and field seamed to a 90° lock. Tite-Loc panels have been designed for application on roof slopes as low as 1/2:12 pitch. As an additional labor-saver, the Tite-Loc seamer has been designed to travel both up and down slope during installation. Tite-Loc panels are available in 12, 16 and 18" widths. Materials available include 22 and 24 gauge steel; .032 and .040 aluminum.

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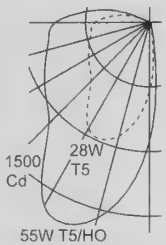
CIRCLE 48 ON INQUIRY CARD

size matters...

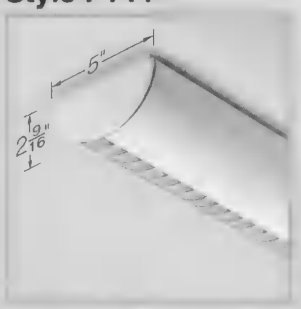
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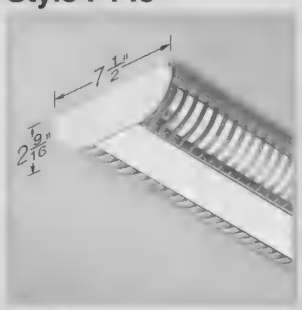


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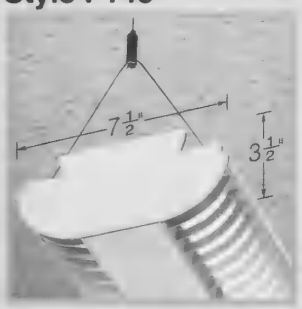
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CIRCLE 49 ON INQUIRY CARD

Expressing the art of **Good Business**

By John E. Czarnecki, Assoc. AIA

ELEVEN DIVERSE PROJECTS, FROM A PEDESTRIAN BRIDGE TO A CHILLED-WATER PLANT TO AN OSSUARY, DEMONSTRATE HOW **GOOD DESIGN IS GOOD BUSINESS** IN A NUMBER OF SETTINGS

The sense of what constitutes good business has evolved in the first five years of the Business Week/Architectural Record Awards program. In that time, in the United States in particular, we've seen the arrival and abrupt rightsizing of the New Economy. The lasting result of the go-go economy with its irrational exuberance has been a transformed American workplace: The influx of new dot-com companies in the late 1990s ushered in a more democratic office environment designed to foster creativity. But good business is no longer relegated to the workplace. Today, the art of economic enterprise can be expressed in many forms, including a funky, transformable office, a pedestrian bridge, a chilled-water plant, or even a Buddhist temple ossuary. Those diverse building types were all winners in the fifth annual Business Week/Architectural Record Awards program, showcasing the best examples of how good design is good business.

A jury of architects and business leaders poured through 192 entries in selecting 19 projects that were honored as finalists. This was the

2001 AWARDS JURY

- **Franklin D. Becker**
  Professor and Chair, Dept. of Design, Cornell University
- **David M. Childs, FAIA**
  Principal, SOM
- **Thomas Davenport**
  Director, Institute for Strategic Change, Accenture
- **Neil Frankel, FAIA, FIIDA**
  Principal, Frankel + Coleman
- **Chee Pearlman,**
  Consultant and columnist for the New York Times
- **Terence Riley**
  Chief Curator, Dept. of Architecture and Design, MoMA
- **Charles B. Rose, AIA**
  Principal, Charles Rose Architects
- **Mark Walsh**
  Chairman and Chief Strategy Officer, VerticalNet
- **Robert T. Walston**
  Chief Executive Officer, Liberty Livewire Corporation

JURY DESIGNATES

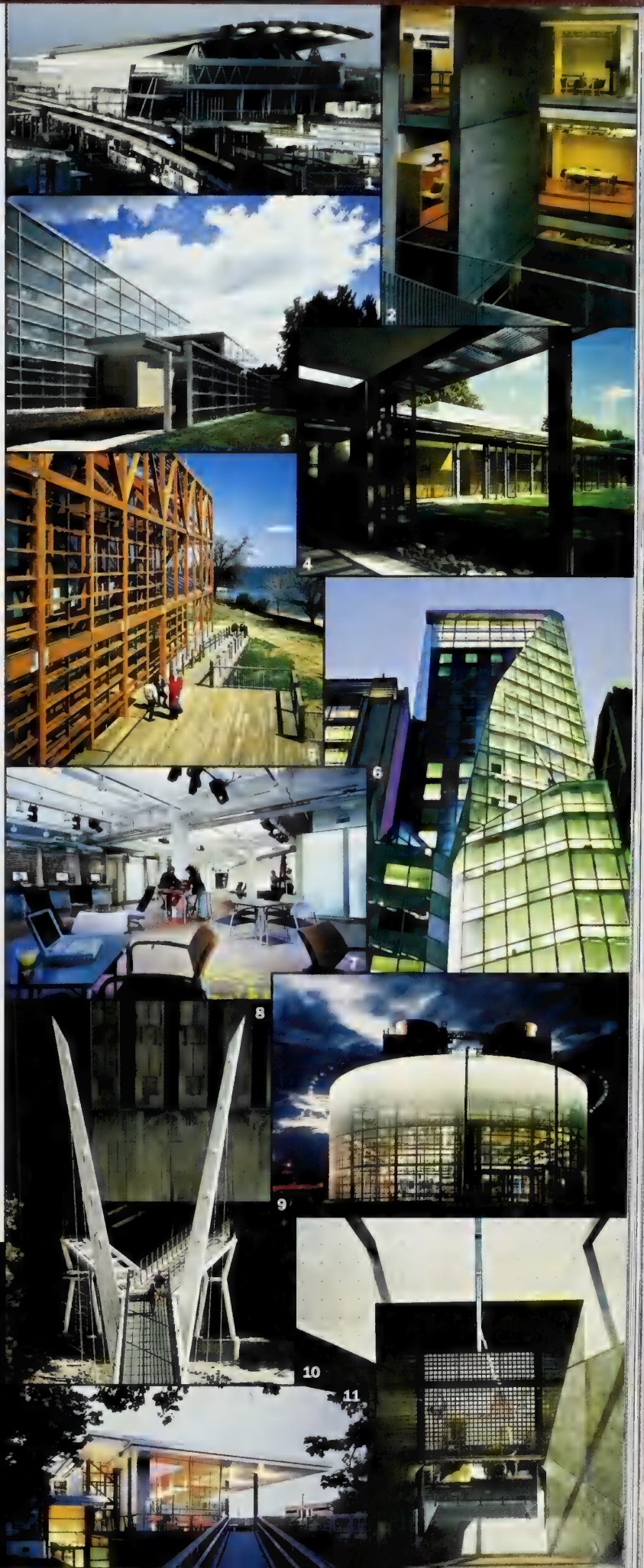
- **Gary Haney, AIA**
  Design Partner, SOM
- **Susan Cantrell**
  Research Fellow, Accenture
- **William R. Sims**
  Professor, Department of Design Cornell University

first year to include finalist as well as winner categories, and, ultimately, 11 of the 19 finalists won awards. Only four of the 11 winners were primarily offices—the Chesapeake Bay Foundation headquarters by Smith Group, the Wieden + Kennedy headquarters by Allied Works Architecture, LVMH Tower by Christian de Portzamparc, and SAP Global Marketing headquarters by HLW.

"People are beginning to see this award in a much broader way," said jury chair Charles Rose, AIA, principal of Charles Rose Architects. "Many nonprofits, in particular, are seeing architecture as a critical piece of their economic plans."

Conscious of an expanded concept of the value of a building for an organization, the jury awarded a wider variety of projects that had, according to Rose, "a lot more aesthetic staying power" than past years' honorees. So, while a reformed, informal corporate America may be here to stay, this year's awardees represent good business in a more universal context of place, building type, and design intent.

1. *Saitama Super Arena*
2. *Weiden and Kennedy*
3. *Phillips Plastics*
4. *Dulwich Picture Gallery*
5. *Chesapeake Bay Foundation*
6. *LVMH Tower*
7. *SAP Global Marketing*
8. *Chilled-water plant*
9. *Pedestrian bridge*
10. *Kuhon-ji Buddist temple*
11. *Corning Museum of Glass*



NICHOLAS BOREL, PETER PAIGE PHOTOGRAPHY, PETER AARONESIO, WYATT GALLERY PHOTOGRAPHY, HU PRO.PHOTO, SCOTT FRANCESCHO

5th Annual Business Week/Architectural Record Awards

This unique awards program judges entries on the basis of their architectural excellence and the degreee to which they advance the owners' goals. Entries include information on the results realized by each project. The jury is selected by Business Week, *RECORD, and AIA (the sponsor) and includes architects, academics, critics, and business leaders. After the jury narrows the entries to about 20, at least one juror visits the sites. For more coverage, see the November 5 issue of* Business Week *or go to www.architecturalrecord.com.*

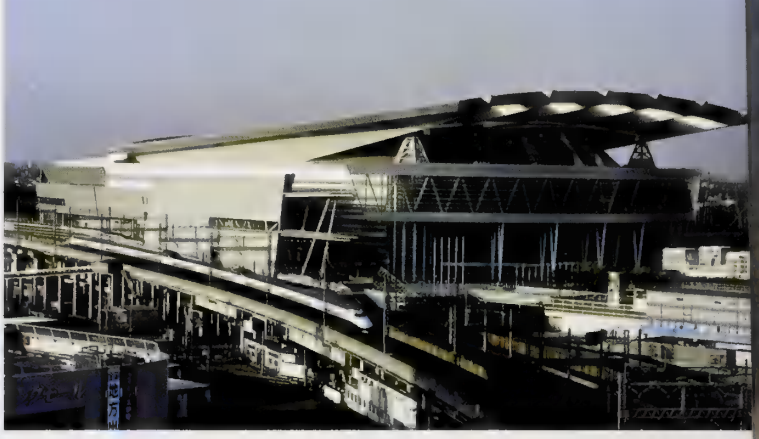
SAITAMA SUPER ARENA FLEXES MEGA MUSCLES

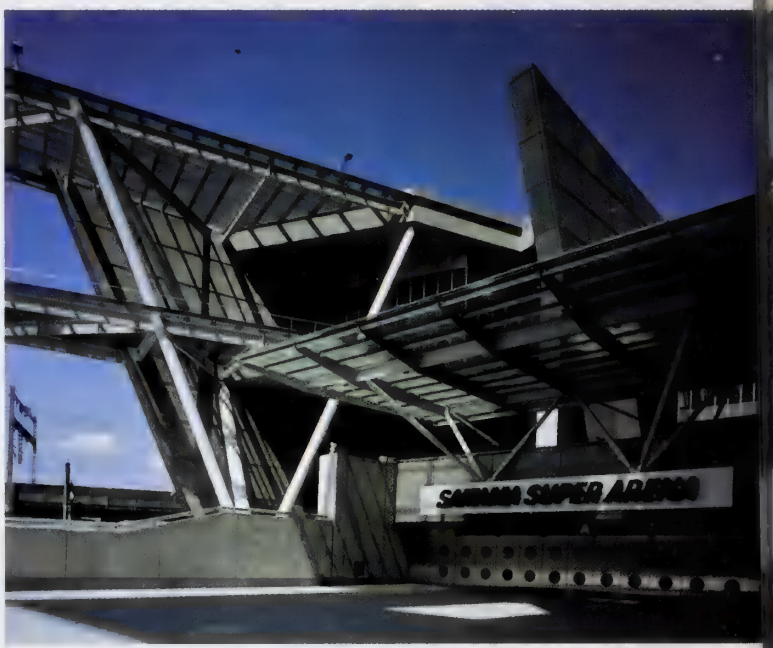
On the tiny island of Japan, space is extremely precious, as the population pushes 126 million. Designed for multiple programming needs in one inclusive location, the 500,000-square-foot Saitama Super Arena was a welcome arrival in the prefecture of Saitama, Japan, just north of Tokyo. Hosting sports, music, industry, and cultural events, this gathering place is useful to people in the community of all ages and walks of life.

The design team was challenged to create a multifunctional facility that combine three buildings in one. It transforms from 30,000 seats for field games and exhibitions to 20,000 seats for music and sporting events, and provides daily cultural and retail activities simultaneously. The building's design and use of technology have caught the attention of visitors and professionals from around the world. Saitama stretches the limit on flexibility, with walls, ceilings, seats, and floors that move. A block of 9,200 seats along with toilets, concessions, and circulation can be reconfigured in about 20 minutes. The movable-block technology has performed flawlessly from its initial test in early 2000 through the building's first year of operation.

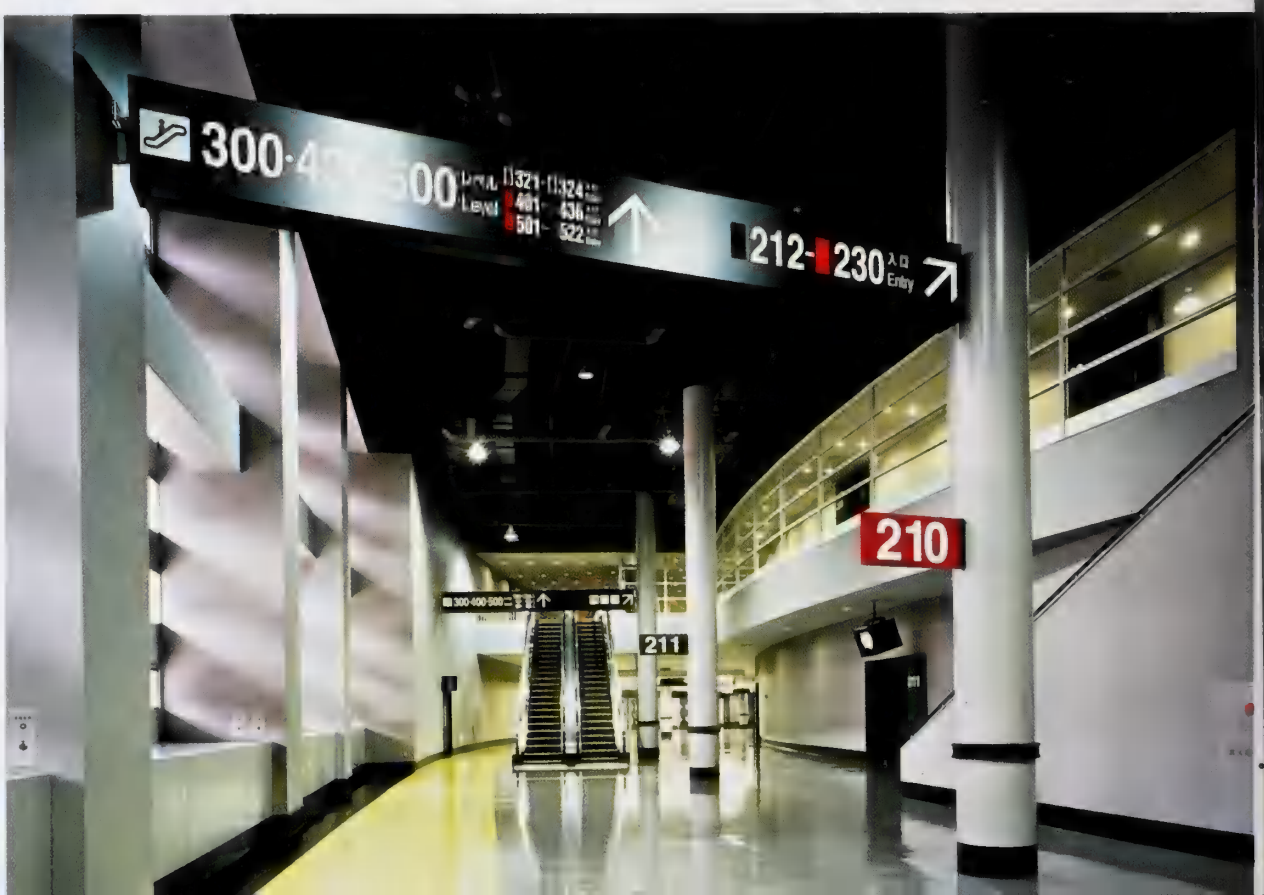
The arena profits from the area's robust industrial activity by utilizing a large exhibition space for trade shows and conventions. "This project was done as a spark plug to ignite interest in the development of this new town. What's sprouting up all around it are new office buildings, government centers, and commerce," says juror Neil Frankel, FAIA.

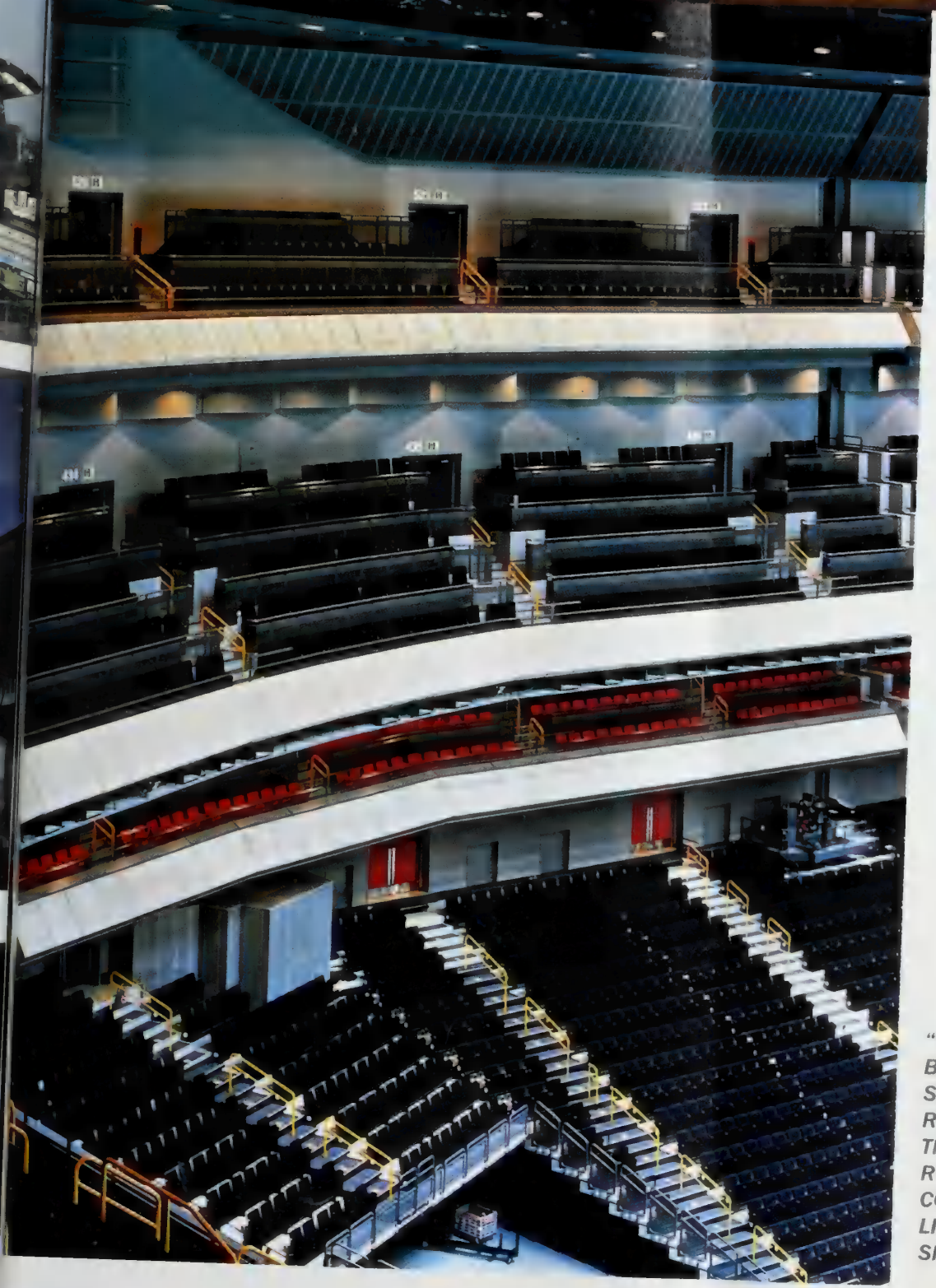
"We are pleased that this dynamic space has been enabled by the highly successful 'moving block' structure."—***TAKAHIRO GUNJI, SAITAMA PREFECTURAL GOVERNMENT***





Project: *Saitama Super Arena, Saitama, Japan*
Architect: *Nikken Sekkei (representative of MAS 2000 Design Team)—Mitsuo Nakamura, Takashi Hirai, Tadao Kamei, Yasuyuki Komatsu; in association with Ellerbe Becket—Gordon E. Wood, Dan Meis*
Client: *Saitama Prefectural Government*
Key Players: *Flack + Kurtz Consulting Engineers*

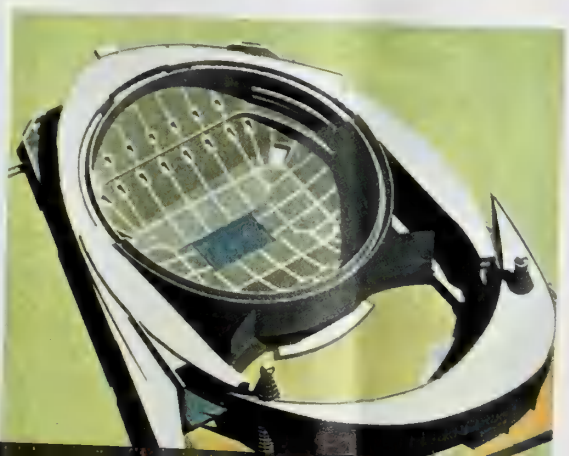




"THEY HAD THE BUDGET TO MAKE SOMETHING THAT REALLY BREAKS THROUGH ALL THE RULES OF CONSTRUCTION. IT'S LIKE BUILDING A SPACE SHUTTLE."

—CHEE PEARLMAN







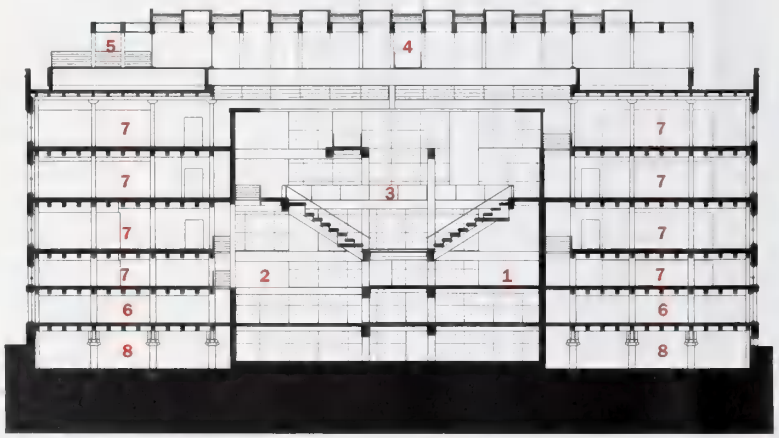
THE ENGINE OF CREATIVITY PERCOLATES AT WIEDEN + KENNEDY

The new global headquarters of this ad agency needed to effect a change—in the mind-set of both its employees and its customers. In its internal organization, it needed to emphasize teamwork and neighborliness, a goal that was accomplished by creating a transparent environment that minimizes staff hierarchy. Its position as a business that influences culture also needed to be strengthened. This was achieved by incorporating spaces for the creative arts. Designed with these aims in mind, the building speaks strongly of new values.

The restored 1914 warehouse in Portland's Pearl District had to accommodate open and creative workspace for 500 employees. The heavy timber building required substantial renovation, repair, and seismic upgrade. The architectural focus became a centralized gathering space, where the entire agency would come together as one with the community. Advanced lighting and audio-visual systems provide an infrastructure that allows artists, and the agency and its clients, to stage all manner of gatherings. Other goals included energy efficiency, resource conservation, and occupant-friendly systems that contribute to an environmental ethic.

The building is a remarkable success, measured by employee satisfaction and the agency's favorable positioning as a creatively led company. Says juror Susan Cantrell, "The building is infused with fresh visions by artists. It has an amphitheater, which it fills up with artists and writers and dancers and performance artists to help inspire the creative people who work there."

"A great building not only changes your environment, it changes your outlook, your fortunes, your sense of self and community. This is one great building." — ***DAN WIEDEN, PRESIDENT/CEO***

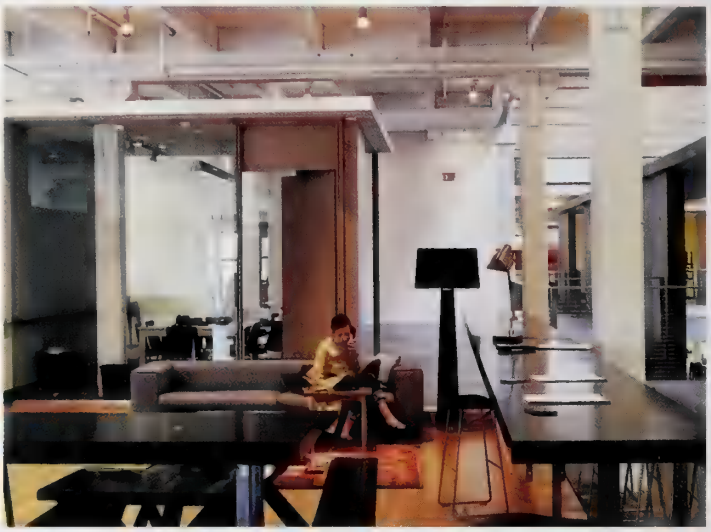


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2. *Gymnasium*
3. *Auditorium*
4. *Penthouse*
5. *Roof terrace*
6. *Retail*
7. *Office*
8. *Parking*









"TO SEE THE IMAGERY AND QUALITY AND CHARACTER OF ARCHITECTURE ADOPTED BY AN AD AGENCY IS ACTUALLY REALLY REFRESHING."
—CHARLES B. ROSE, AIA

Project: *Wieden + Kennedy Building, Portland, Oregon*
Architect: *Allied Works Architecture, Inc.*
Client: *Wieden + Kennedy*
Key Players: *kpff Consulting Engineers (structural); Glumac International (mechanical); James Graham and Associates (electrical)*



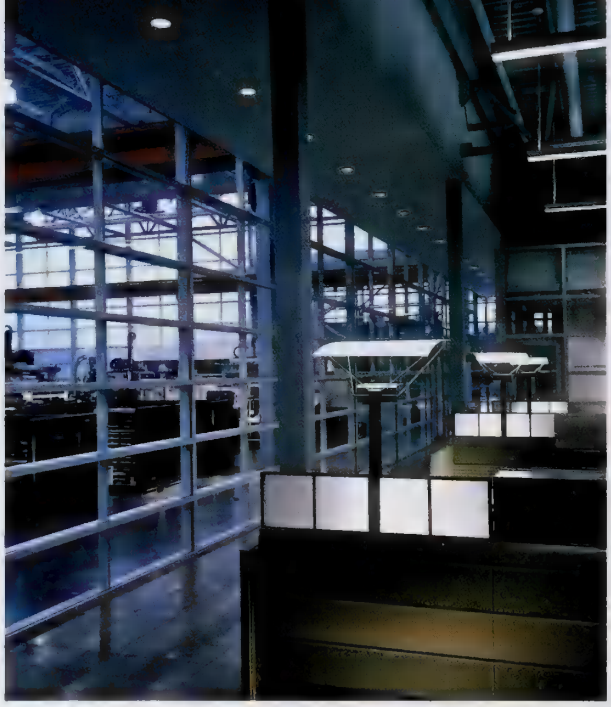
PHOTOGRAPHY: © SALLY SCHOOLMASTER

PEOPLE POWER SUCCEEDS AT PHILLIPS

Instead of just building a factory for its custom-molding division, Phillips Plastics created a manufacturing facility that "sustains and enhances" a corporate culture in which "all people are important," states the company. The 60,000-square-foot building, set on a wooded site overlooking the confluence of the Elk River and Elk Lake in rural Wisconsin, treats blue-collar and white-collar employees as equals [JUNE 2001, page 112]. Although an acoustic-glass wall separates the factory floor from offices, visual contact between the two areas encourages a sense of working together. Views outdoors, plenty of daylight, and handsome materials are distributed throughout the facility. Even the massing of the building encourages a spirit of teamwork, with intersecting glass-and-stone blocks dissolving any distinction between production and administration.

The heart of the building—a 220-foot-long-by-130-foot-wide manufacturing shed—combines two overhead gantry cranes and three service trenches to create an uncluttered and flexible factory. While the design team brought as much daylight as possible to work areas, it controlled light quality with shading overhangs, fritted glass, and native plantings. Such strategies reduced glare in work areas and energy consumption throughout the building. Juror Neil Frankel, FAIA, observes, "One can imagine Phillips bringing customers to this facility, knowing that the precision and culture of the company are revealed in the building."

"This project is the result of a 37-year effort to enhance the ability of people to work together effectively." ***—ROBERT F. CERVENKA, PHILLIPS PLASTICS CHAIRMAN OF THE BOARD***







Project: *Phillips Plastics Custom Molding Facility, Phillips, WI*
Architect: *Krueck and Sexton Architects; Doug Haas, O.J. Boldt Construction (architect of record); Rick Fischer, AIA (associate architect)*
Client: *Phillips Plastics*
Key Players: *Larson Engineering of Wisconsin (structural)*

"IN PHILLIPS'S BUSINESS, YOU WOULDN'T HAVE A SHOWROOM. THIS BUILDING IS THE SHOWROOM AND IT SPEAKS FOR THE COMPANY."
—TERENCE RILEY

PHOTOGRAPHY: © MARIUSZ MIZERA

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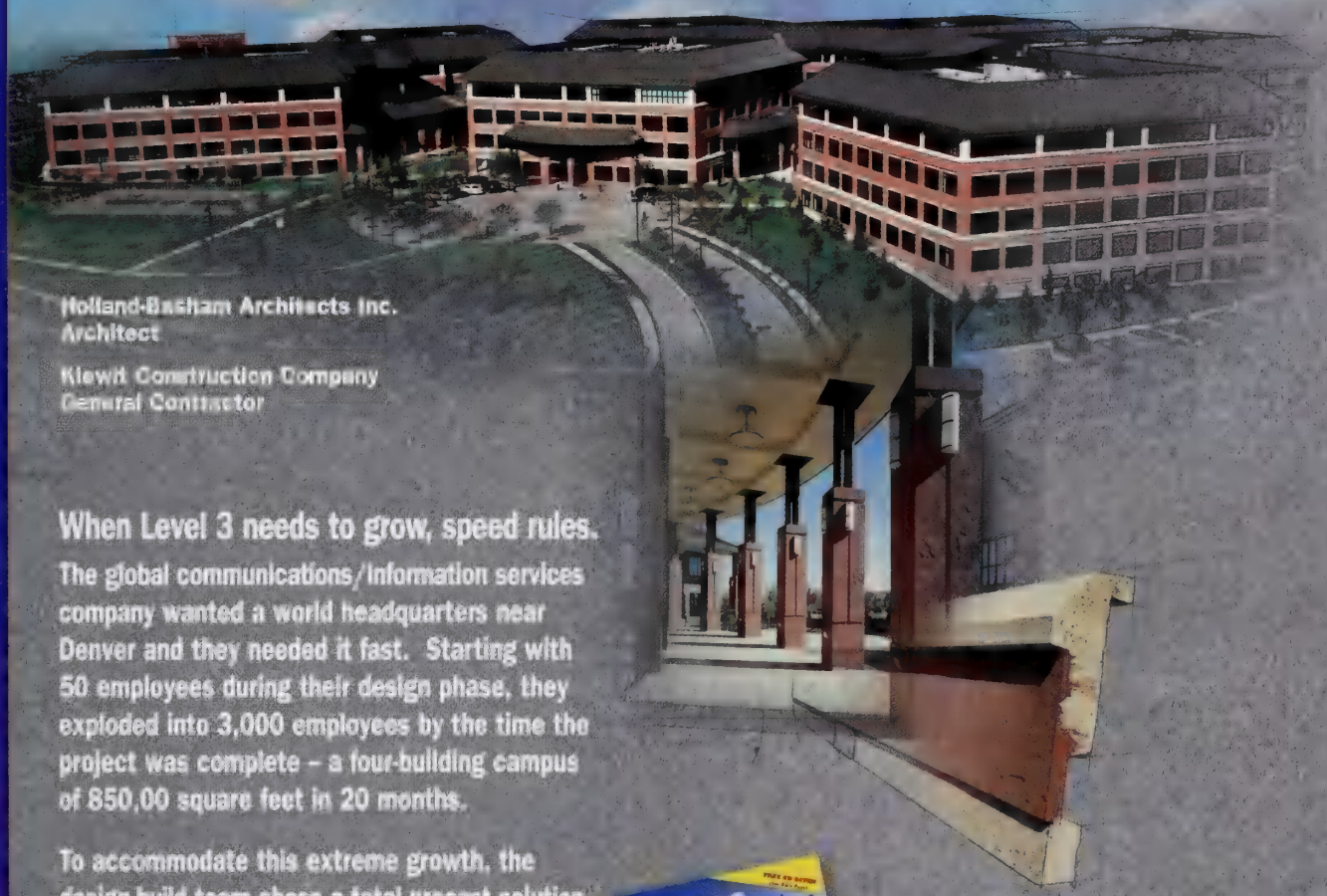
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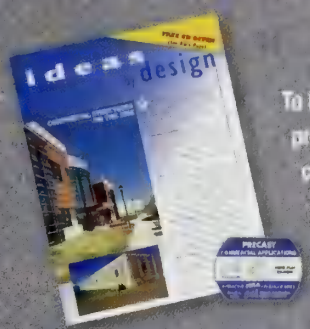
When Level 3 needs to grow, speed rules.

The global communications/information services company wanted a world headquarters near Denver and they needed it fast. Starting with 50 employees during their design phase, they exploded into 3,000 employees by the time the project was complete – a four-building campus of 850,00 square feet in 20 months.

To accommodate this extreme growth, the design-build team chose a total precast solution. All precast concrete structural frames and architectural load-bearing panels enable the design team to meet a rigorous timetable.

Strong aesthetics needs were addressed with innovative, acid-etched panels for texture. Colors were chosen to match the indigenous stone-reddish hues with a tan/beige accent line.

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CIRCLE 50 ON INQUIRY CARD

ARCHITECTURE SPEAKS QUIETLY AT DULWICH PICTURE GALLERY

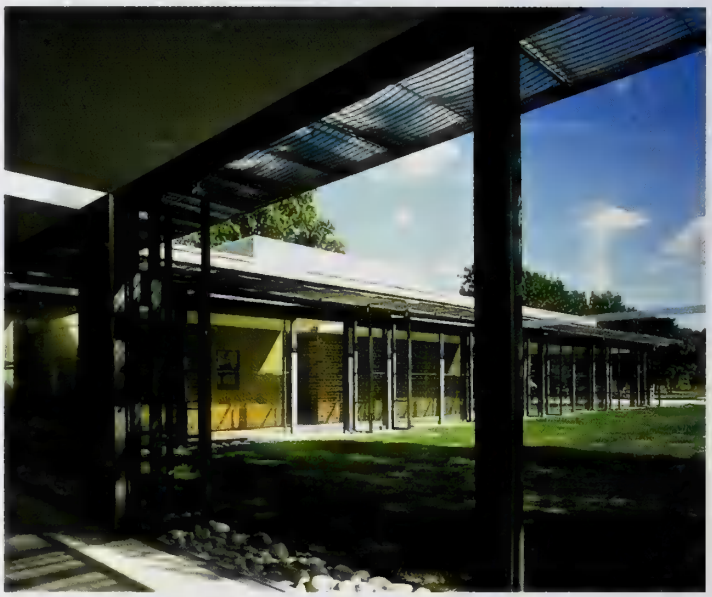
It is a trick that few architects know—how to insert into existing buildings modern additions that do not overstate the purpose they serve. Founded in 1811, the Dulwich Picture Gallery, England's oldest built-for-art gallery and a masterpiece of architecture, needed such treatment. Rick Mathers Architect succeeds in getting out of the way to allow this historic gem, designed by one of England's most famous architects, Sir John Soane, to speak its mind. Damaged in World War II, the building needed a complete systems and technical overhaul. The new addition offers the necessary visitor amenities, including a 60-person café and a multipurpose room for education, while respecting the original setting of the gallery. The complex forms a cloister that defines a formal quadrangle facing a garden, which the café opens out to and which serves as a link to the main gallery.

Although there is little visual evidence of change, the existing gallery has been entirely refurbished with modern computer-controlled variable day-lighting through the roof lights, new lighting to replace the fluorescent fixtures, and concealed black-out blinds. This has brought the lighting control for the displayed pictures within modern conservation standards.

"Doubling attendance and creating an income stream that supports the museum, as well as involving the local community in programs that occur at the museum, are noteworthy signs of success," says juror Robert Walston.

"The visitor amenities provided in the addition are housed in the most elegant and useful of modern buildings." — ***KATE KNOWLES, HEAD OF PRESS AND MARKETING***







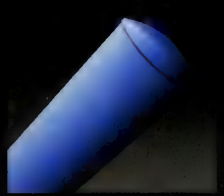
Project: *Dulwich Picture Gallery, London, England*
Architect: *Rick Mather Architects—Rick Mather, Douglas McIntosh, Neil Bennett, Matthew McGrory, Chris Wood*
Client: *Dulwich Picture Gallery*
Key Players: *Dewhurst Macfarlane and Partners (engineers); Phoenix Large /Light Matters (lighting)*

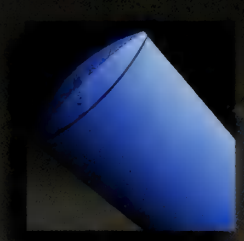


"THE ARCHITECT WAS IN TOUCH WITH THE CORE VALUES OF HIS CRAFT. HE KNEW THE SOANE BUILDING WAS A NEAR PERFECT GEM, AND THE SOLUTION WAS NOT MORE ARCHITECTURE."
—TERENCE RILEY

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CIRCLE 51 ON INQUIRY CARD

THE GREENEST OFFICE ON THE BAY

In designing a new headquarters for the largest nonprofit regional environmental organization in the U.S., Smith Group created an icon for sustainability. The Chesapeake Bay Foundation headquarters, the Merrill Environmental Center, a building with a number of environmentally "green" features, embodies the culture of the organization and is the only building to have received a platinum rating from the U.S. Green Building Council's Leadership in Energy Efficient and Environmental Design program.

The 32,000-square-foot office building, located on 31 acres near the shore of the Chesapeake Bay in Maryland, includes solar panels, natural ventilation, a geothermal heat pump with a desiccant dehumidification system, and roof and wall enclosures of Structurally Insulated Panels. Clad in galvanized siding made from cans, cars, and other recycled metal objects, Smith Group designed the building to use 10 percent of the potable water and 70 percent less energy than a typical office building. All wood was from renewable sources. A number of technologies are brought together in one building—a demonstration building of sorts for green technology.

The Chesapeake Bay Foundation headquarters raised crucial questions for the jury beyond simple aesthetics and matching building program with business mission: Does green design necessarily mean good design? And is green design necessarily good for business?

"It has been a magnet for the audiences whose building projects we want to influence."

— MARY TOD WINCHESTER, CHESAPEAKE BAY FOUNDATION VP





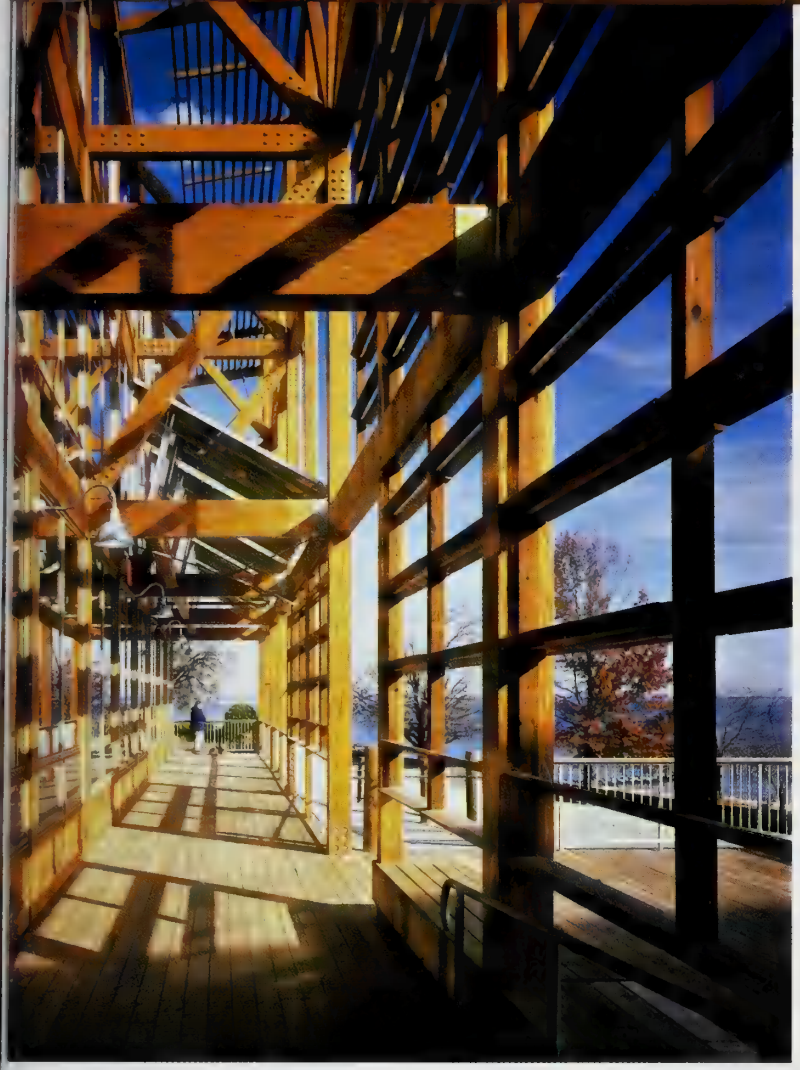


NORTH-SOUTH SECTION

0 10 FT. 3 M.

1. *Cistern*
2. *Restroom*
3. *Open office*
4. *Locker room*
5. *Restroom*
6. *Open office*
7. *Deck*
8. *Mechanical room*
9. *Parking*









Project: *The Philip Merrill Environmental Center, Annapolis, Maryland*
Architect: *Smith Group—Thomas Eichbaum, FAIA, Robert M. Anderson, AIA, Donna McIntire, Greg Mella, AIA*
Client: *Chesapeake Bay Foundation*
Key Players: *Smith Group (MEP); Shemro Engineering (structural); Greenman-Pederson, Inc.*

"THE CHESAPEAKE BAY FOUNDATION IS DOING EVERYTHING IT CAN TO HAVE A SELF-SUFFICIENT BUILDING THAT DOES NOT DETRACT FROM ECOLOGY."
— MARK WALSH

PHOTOGRAPHY: © PRAKASH PATEL

LVMH TOWER OFFERS A NEW SLANT ON NEW YORK CITY ZONING RULES

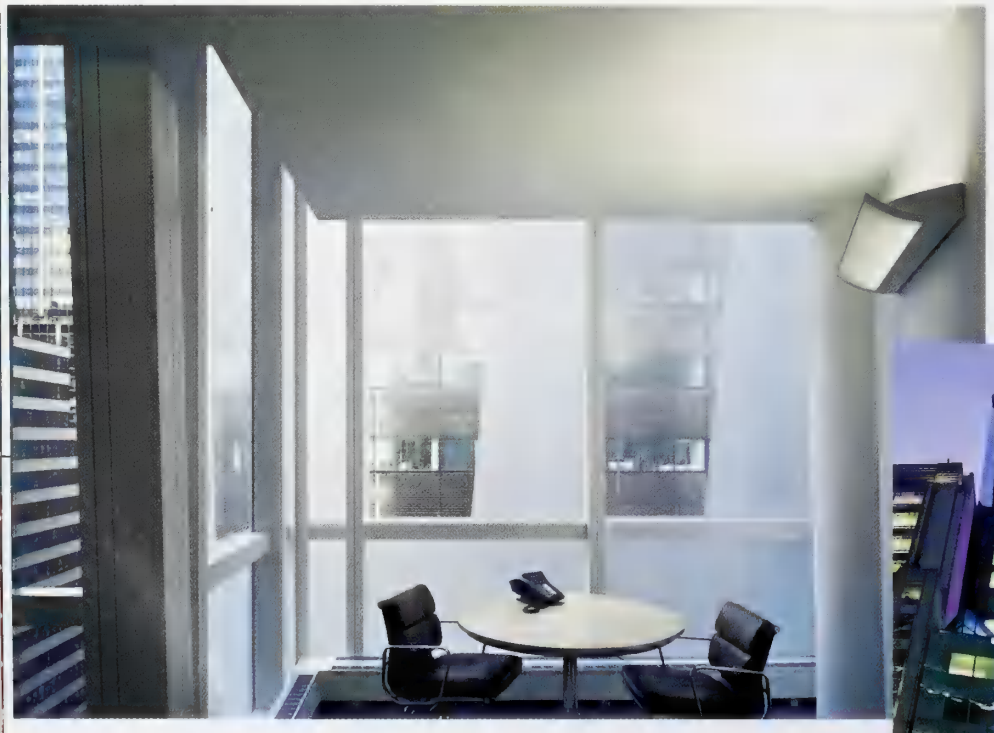
For its new American headquarters, the international luxury goods conglomerate LVMH Möet Hennessey Louis Vuitton wanted a design that would stand out from the throng of tall corporate towers and glossy shops of midtown Manhattan. The company got its wishes by going to the French architect, Christian de Portzamparc. The Pritzker-Prize winner came up with a slim, 60-foot-wide, 24-story tower with a multifaceted glazed facade of folded and chiseled wedgelike planes that inventively responds to New York City's zoning regulations. De Portzamparc followed the rules calling for setbacks according to a sky-exposure plane, yet literally gave them a new slant.

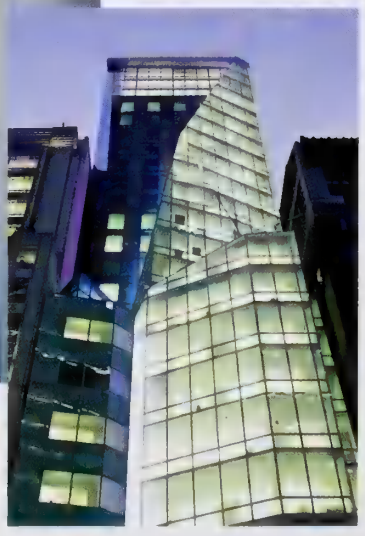
Working with the Hillier Group and curtain wall consultant Robert Heintges, de Portzamparc devised an architectonic facade that features three types of glass—clear glass; green glass with ceramic frit; and a white, low-iron glass with a sandblasted geometric pattern. Most of the office floors of the 112,167 square-foot, steel-framed structure are a perfunctory 3,000 to 5,000 square feet in size, with 12-foot, floor-to-floor heights. Topping the building, however, is a spectacular glass cube, where a 30-foot-high penthouse has been fitted out for receptions.

LVMH believes the volumetric skin is a refined, dynamic image for the company. The response from the public and press has made the investment—estimated at about $40 million—worth it. [see MARCH 2000, page 99].

"True, the building cost more than simple offices, but the creative gesture is also a major investment." ***—LVMH MÖET HENNESSEY LOUIS VUITTON***







Project: *LVMH Tower, New York City*
Architect: *Atelier Christian de Portzamparc, architect—Christian de Portzamparc, Bruno Durbeq, Wilfrid Bellecour; Hillier Group (architect of record)*
Client: *LVMH*
Key Players: *Peter Marino (interiors); Weiskopf and Pickworth (engineer); Ove Arup and Partners (structural)*

"THIS TOWER HAS DONE MORE THAN WAS INTENDED—THAT IS, TO IMPROVE THE CULTURE OF BUILDING IN NEW YORK. IT HAS RAISED THE EXPECTATIONS ABOUT WHAT ARCHITECTURE CAN DO."—TERENCE RILEY

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CIRCLE 52 ON INQUIRY

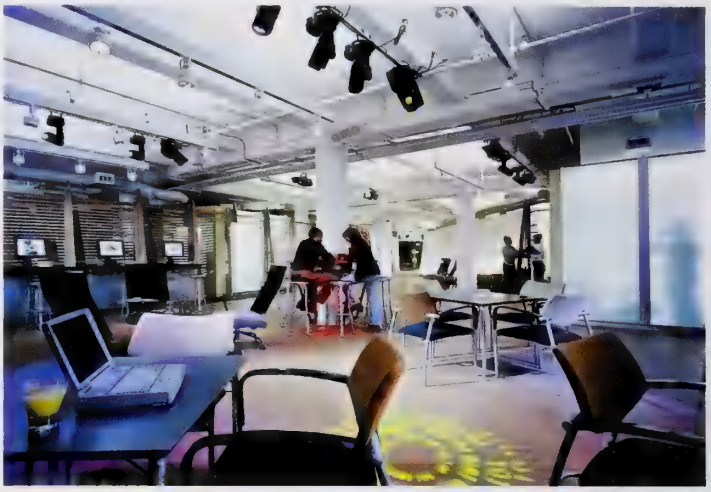
EVOLVING SPACES: SAP GLOBAL MARKETING HEADQUARTERS

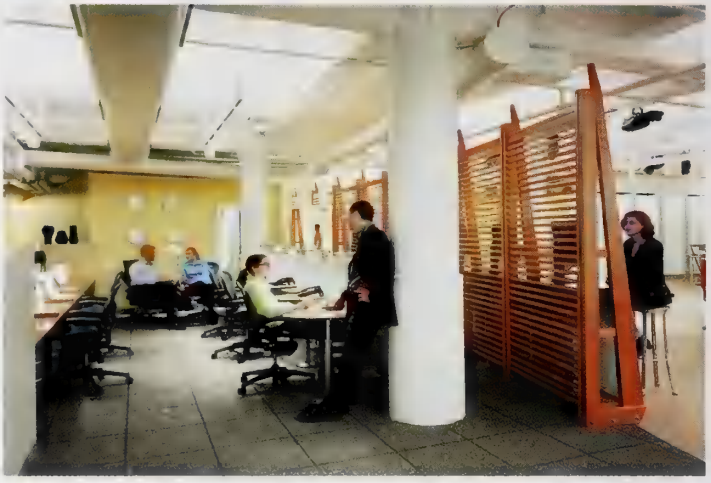
Last summer, SAP, the world's third largest software company, decided to move its marketing headquarters from a corporate headquarters in Walldorf, Germany, to New York's Greenwich Village. Selecting a historic printing building at the edge of lower Manhattan's former dot-com haven known as Silicon Alley, the firm sought to establish an intimate yet dynamic work environment at the core of its operations.

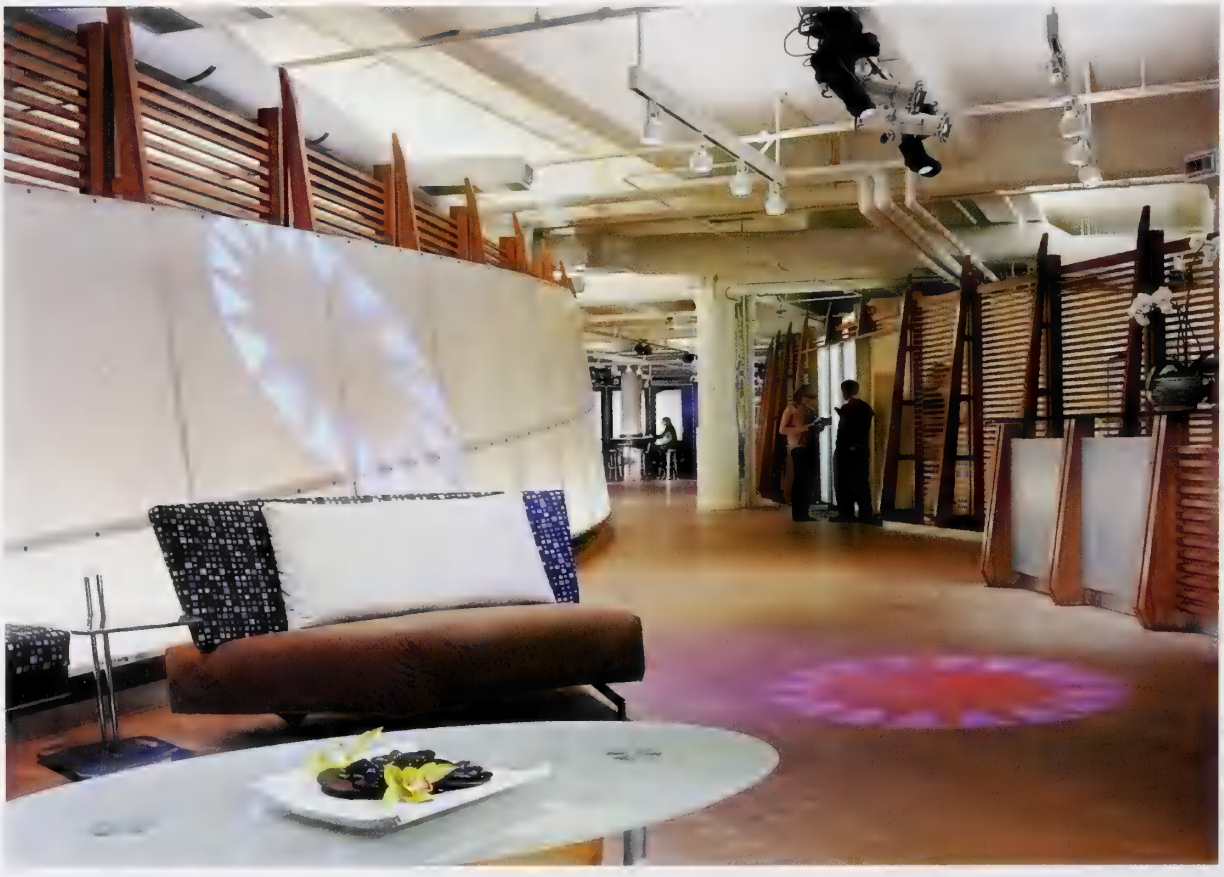
Using movable walls, flexible partitions, and convertible furniture, the architects created a continually evolving space to cater to the office's broad spectrum of needs. A central plaza at the heart of the office can accommodate a variety of marketing and media events, while intermediate workspaces defined by frosted glass and slatted partitions radiate outward. Rotating cylindrical desks and plug-and-play devices similarly allow employees to reconfigure the space according to their individual preferences and needs.

The flexible working areas were an immediate success. Having the ability to easily move walls and lower screens means the employees can transform an ordinary office into a kinetic marketing environment, with the space itself an integral working tool. SAP has already decided to expand its operations to another floor, and HLW is now in the process of designing the expansion.

"If we are really going to have a marketing culture, you have to have the environment for it."—*MARTIN HOMLISH, EXECUTIVE VICE PRESIDENT/ CHIEF MARKETING OFFICER*



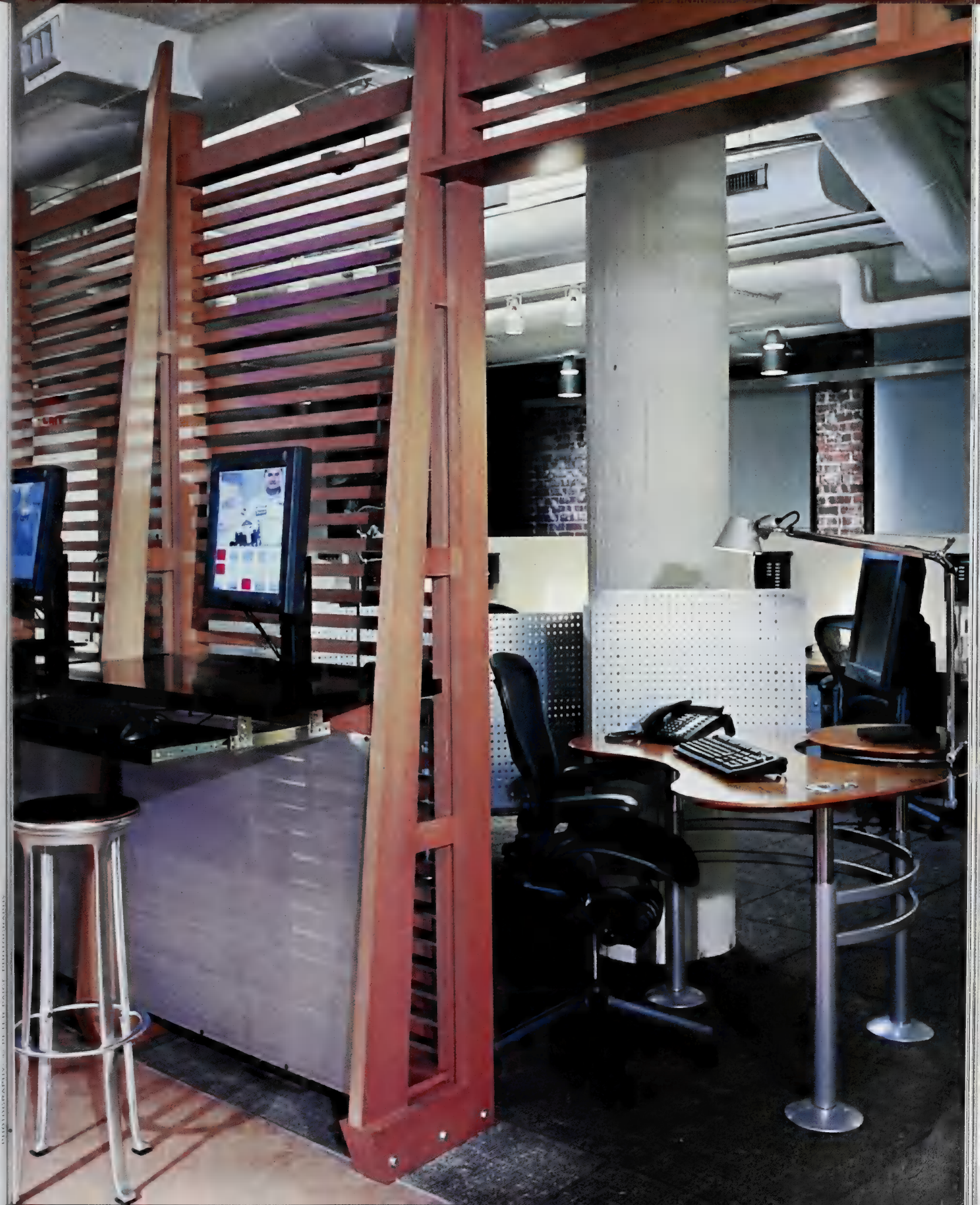




Project: *SAP Global Marketing Headquarters*
Architect: *HLW International—Susan L. Boyle, AIA; Vivian Chavez, AIA; Nicholas Rumanes*
Client: *SAP Global Marketing, Inc.*
Key Players: *Basma Basilious; Isaac Vanunu, (electrical engineer); Frank Andrade (plumbing); Tim Schenck, Krystyna Walter (HVAC)*

"THE FACILITIES ARE FASCINATING. A PERSON HAS THE ABILITY TO TRANSFORM THE LAYOUT OF THE WORKSTATION IN TERMS OF WHERE THEY ARE FACING, FROM INDIVIDUAL WORK TO TEAMWORK."
—GARY HANEY, AIA

PHOTOGRAPHY: © PETER PAIGE PHOTOGRAPHY



A WARM WELCOME FROM THE UNIVERSITY'S CHILLED-WATER PLANT

A two-block-long chiller plant is not a self-evident way to say, "Welcome to the University of Pennsylvania!" But in the hands of architects Leers Weinzapfel, the plant has become an elegant urban gateway for an increasingly busy side of the campus. The university recognized that a new chiller facility could more reliably and economically serve its growing medical and research complex, but also saw that the best site for it was too prominent for such a large, utilitarian structure to be built undisguised. The architect won a competition for the structure, sponsored by Penn, with the deceptively simple strategy of wrapping the plant in an oblong scrim of perforated, corrugated metal panels. A running track encircling the enclosure and a baseball field to one side restored athletic fields displaced by the plant.

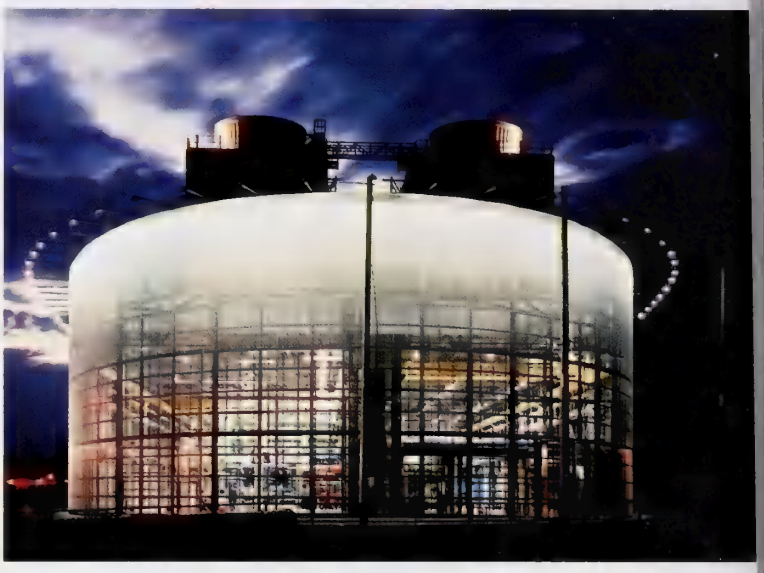
By day, depending on the angle of the sun, the plant appears in ghostlike profile behind the screen and its web of supporting steel—or it can disappear, except for its rooftop chillers, behind what looks like a shadow-dappled solid wall. At night, fixtures ringing the top of the enclosure project a halo of light, under which the structure's brightly colored pipes and tanks are visible .

While the University appreciates this aesthetic chameleon of a gateway, it also enjoys the plant's 40 percent lower energy usage and the ease with which its current 20,000-ton cooling capacity can be more than doubled.

"For coming generations, the plant will introduce students and visitors to the institution."

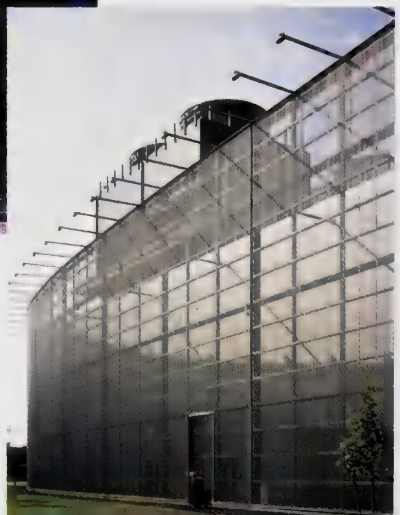
— OMAR BLAIK, VICE PRESIDENT FOR FACILITIES SERVICES







Project: *Modular VII Chiller Plant, Philadelphia*
Architect: *Leers Weinzapfel Architects—Jane Weinzapfel, FAIA, Andrea P. Leers, FAIA, Joe Raia, AIA*
Client: *University of Pennsylvania, Philadelphia*
Key Players: *William J. Trefz Consulting Engineers (mechanical/electrical engineering); Keast and Hood (structural engineer)*



"THE ARCHITECT AND CLIENT GAMBLED THAT THEY COULD MAKE SOMETHING YOU REMEMBER EACH TIME YOU ENTER PHILLY—AND THEY SUCCEEDED."

— MARK WALSH

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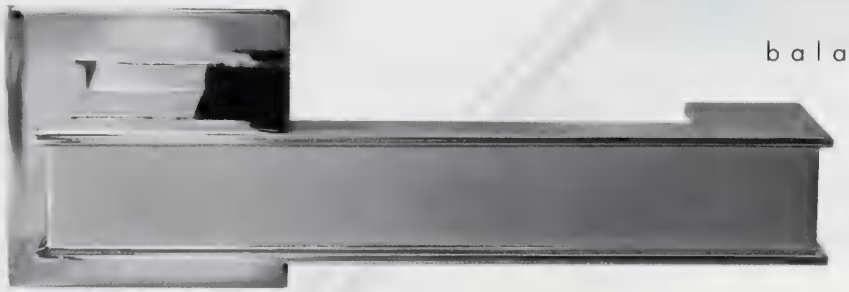
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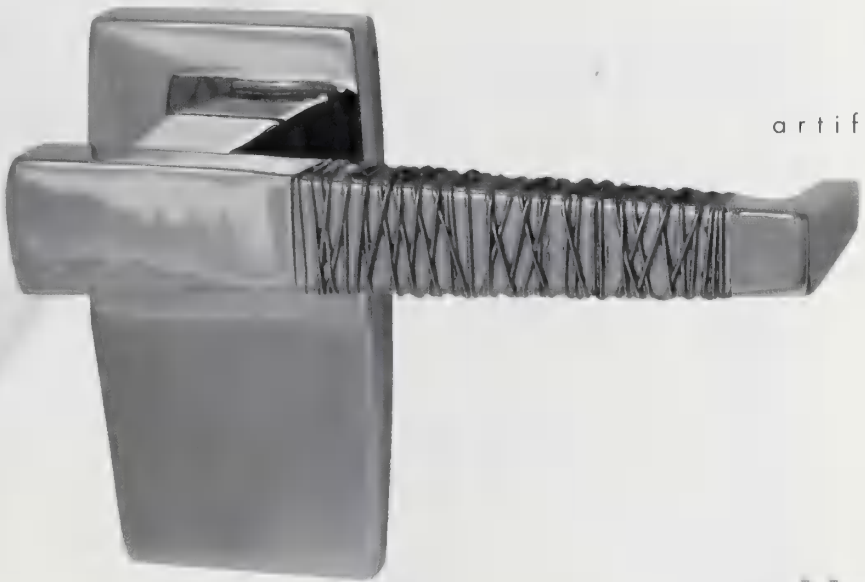
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WELCOMING BRIDGE BOOSTS SAFETY

After a series of accidents injured residents of a high-rise apartment building serving Rockefeller University in New York City, officials recognized that they needed a bridge to get residents over the traffic swarming on and off a highway that separated the building from the campus.

Wendy Evans Josephs, in getting acquainted with the university president emeritus Torsten Wiesel, learned that he had rejected a bridge design that circled a neighboring building, making it too costly to build. She sketched a cable-stayed alternative, suspending the bridge deck from a single pier and mast, which avoided disrupting traffic during construction and relocating a maze of underground utilities. It didn't rely on the adjacent buildings for support—they didn't have the capacity. She submitted her idea unsolicited. Urged to develop it, she and joint venture partner Weidlinger Associates, structural engineers, eventually built it for one fourth the rejected design's estimate.

From the apartments, Josephs routed the new pedestrian path through a laboratory building, linking it to a reworked plaza and entrance to another long-neglected complex of lab buildings. The rails and bridge deck were slimmed to keep vistas to the East River unblocked, and campus steam lines and utilities were extended under the walking deck, freeing the apartment building of costly vendor-supplied heat. The utility savings alone will pay for the cost of the bridge in just a few years. No one has to dodge cars and trash bins to enter the campus anymore. The elegance of the bridge and campus entrance now aids recruitment.

"The pedestrian bridge forges a link between the campus and housing, providing a safe passage for all." ***—TORSTEN WIESEL, PRESIDENT EMERITUS***





Project: *The Campus Community Bridge in honor of Torsten Wiesel, New York City*
Architect: *Wendy Evans Joseph, AIA (principal-in-charge); Robert Furno, AIA (project architect); Peter Cody; Stas K. Zakrzewski*
Client: *The Rockefeller University*
Key Players: *Weidlinger Associates, Inc. (engineers)*



"THIS SOLUTION IS SO ELEGANT AND EFFECTIVE THAT IT'S HARD TO IMAGINE HOW THE UNIVERSITY FUNCTIONED BEFORE THIS BRIDGE WAS BUILT."
—GARY HANEY, AIA

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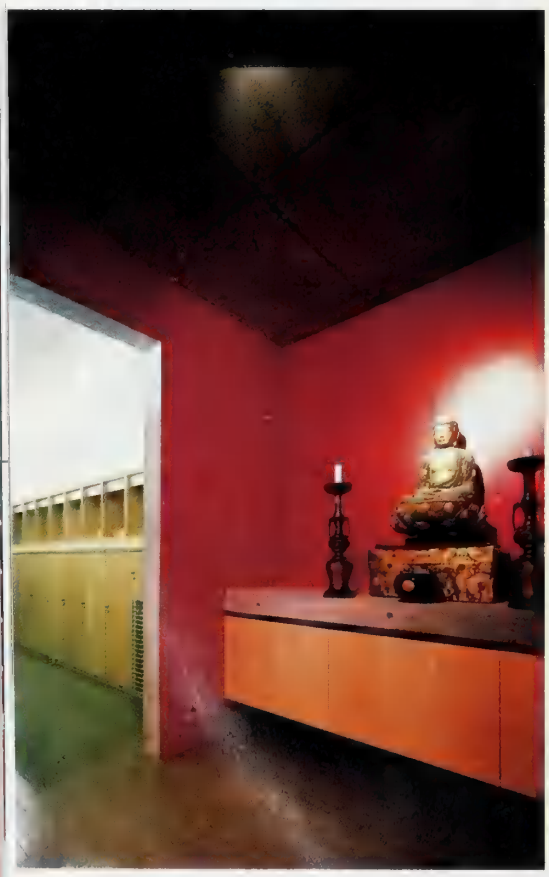
SERENE STABILITY: KUHONJI BUDDHIST TEMPLE GATE AND OSSUARY

The Kuhonji Temple in Nagasaki, Japan, had a problematic site. Its ossuary (a funerary vault central to Japanese ancestor worship) had been built on sloping, shored-up land that was deteriorating. The local authority called for its demolition. A special committee of the priests and members of the temple's Jodo sect decided on another scheme: to build a new and larger ossuary that would form a retaining wall for the site. By building a 3,000-square-foot structure, the group was able to expand the ossuary from 100 to 400 tombs, thus making a profit through the sale of additional tombs. Since the existing temple had no traditional gate, the new plan also includes one, with a central stair bisecting the new complex, and parking slots provided at the bottom. Sacred ponds behind the ossuary are traversed by a glass bridge that leads to the temple at the top of the site.

The crisply detailed, poured-in-place concrete structure, designed by Furuichi and Associates of Tokyo, not only solved the problem, but proved to be an economic success. It also generated new interest in the temple from the neighborhood. As juror Gary Haney, AIA, noted, "It is a wonderful story about how a simple architectural solution has stabilized a decaying building—and a religious group." Another juror, Chee Pearlman, commended the solution for being executed with such elegance: "We have seen an architect come in and really make this building an extension of a belief system."

"Buddhist temples were considered old-fashioned; now with this new ossuary the local people are showing more interest."

—YOJYU USHIDA, JODO PRIEST

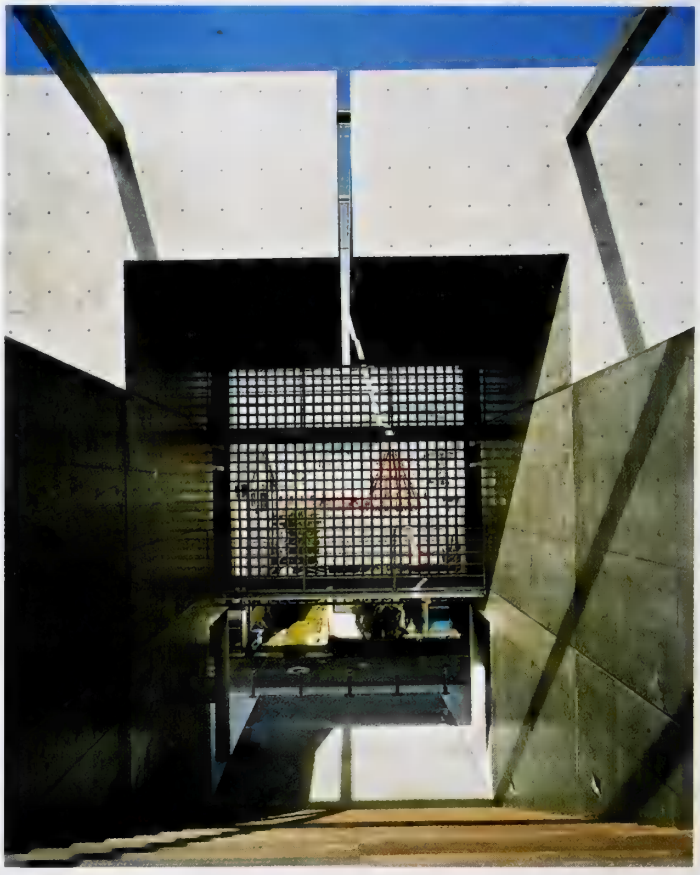


Project: *Kuhonji Buddhist Temple Gate and Ossuary, Sasebo, Nagasaki, Japan*
Architect: *Furuichi and Associates—Tetsuo Furuichi (principal); Tomo House, Inc. (associate architect)*
Client: *Kuhonji Buddhist Temple*
Key Players: *Umezawa (structural engineer); Kojima (electrical engineer); Kurosaki (mechanical engineer); Takenaka Corporation (general contractor)*

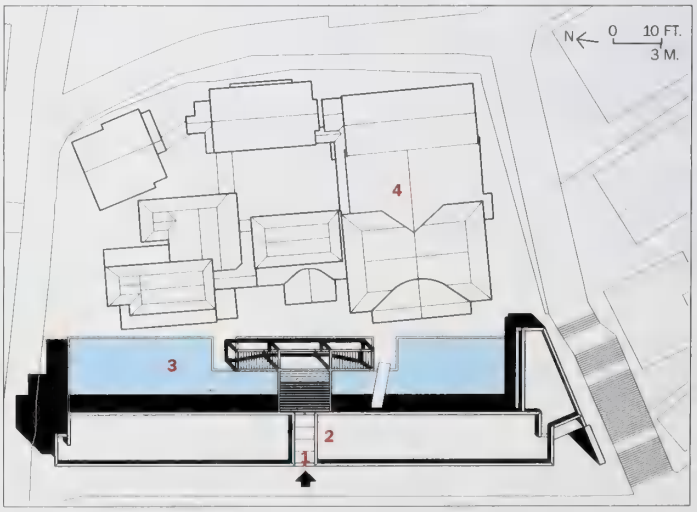
"THE PROJECT IS QUITE CLEVER IN ITS SECTIONAL DEVELOPMENT AND ITS PLANNING. WITH VERY FEW MINIMALIST MOVES, IT TELLS A GREAT STORY."

—CHARLES B. ROSE, AIA

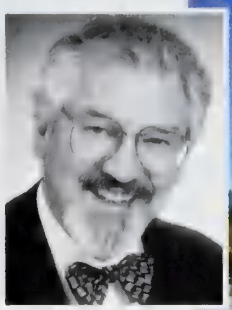




1. *Entrance to the temple gate*
2. *Ossuary*
3. Shinsui-ike *(sacred pond)*
4. *Existing temple*



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Magellan Health Services Building, Columbia, Maryland

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CIRCLE 54 ON INQUIRY CARD

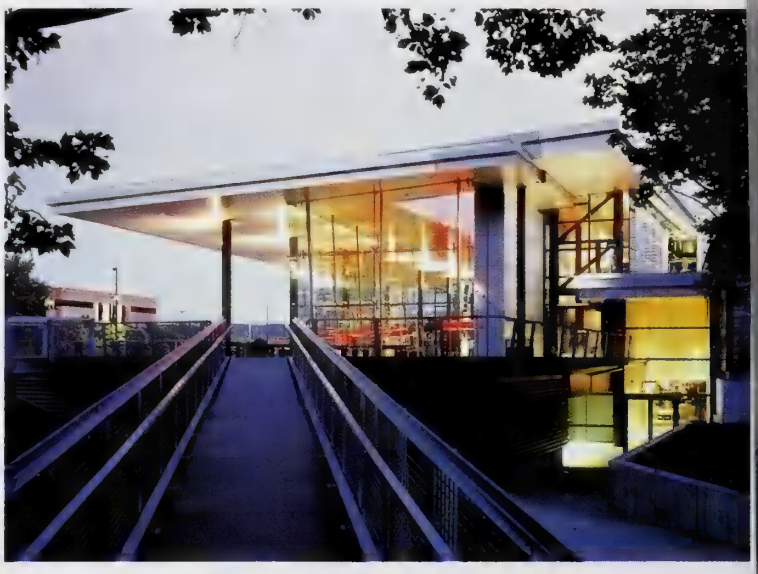
CORNING GIVES THE GIFT OF TRANSPARENCY

Much like the first glass center at the 1939 World's Fair, the original Corning glass museum, built by the architect Wallace Harrison in 1951, showcased the science and art of glass and served as a beacon for culture in the town of Corning, New York, and the region altogether. It was fitting that part of the scope of this five-year, multidimensional renovation and addition executed by Smith-Miller + Hawkinson was a performing arts space for the entire community. In addition, the firm renovated the Corning Glass Center, including the Stueben glass-blowing factory; refurbished the original glass museum; and added a new entrance pavilion called the Orientation Center, with its 80-person theater displaying the art and history of glass. This subtle recombination of disparate elements ties together the historical iconography of the original buildings with new insertions to create a full-service cultural and educational facility. Visitorship, which had been turning downward for a number of years, has been going back up at the significant rate of 8 percent annually.

Showcasing glass was tricky because the material is so much a part of the infrastructure. The architect orchestrated a dynamic sequence of glass exhibits for the visitor to pass through and engage in that is full of surprises. In the words of juror Chee Pearlman, "that's the thing that's so magical about this place—there's no small metaphor for the use of the shimmering, glowing, alive material of glass to make this a welcoming place."

"Like glass, the building reveals itself over time, retaining a sense of discovery. I feel this will be a new and surprising building for a long time to come." ***—ROB CASSETTI, MARKETING DIRECTOR***









1. *Entrance/lobby*
2. *Theater*
3. *Glass innovation center*
4. *West bridge*
5. *Auditorium*
6. *Sculpture gallery*
7. *Collections gallery*
8. *Steuben glass factory*
9. *Offices*







Project: *Corning Museum of Glass, Ithaca, New York*
Architect: *Smith-Miller + Hawkinson Architects—Henry Smith-Miller, Laurie Hawkinson, Ingalill Wahlroos*
Client: *Corning, Inc.*
Key Players: *Ove Arup and Partners (engineers); Ralph Appelbaum (exhibition design); Welliver McGuire (general contractor)*

"WEAVING TOGETHER THE HISTORICAL ICONOGRAPHY OF THE EXISTING BUILDINGS WITH THE NEW DESIGN IS SO SUCCESSFUL THAT IT'S TRANSPARENCY ITSELF."
—GARY HANEY, AIA

Eight finalist's projects buzz with creativity

GOOD DESIGN CONTRIBUTES NOT ONLY TO THE BOTTOM LINE BUT TO THE POETRY THAT UNDERLIES SUCCESS

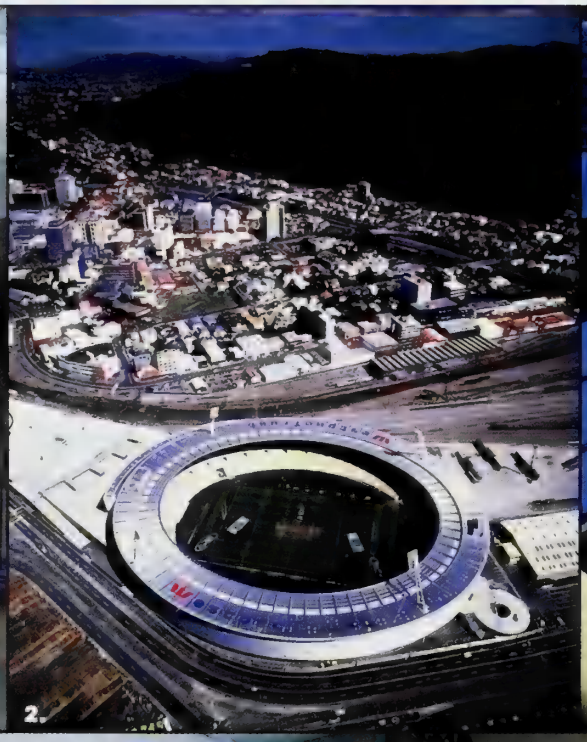
By Jane F. Kolleeny

The finalists for the Business Week/Architectural Record Awards program demonstrate the variety of goals that institutions and their buildings can reach together. Defining such goals is not so simple. It can involve determining how a company appears to the public, how contented its employees are with their work environment, and how a business demonstrates its commitment to values.

While these eight projects were not included among the final 11, they all demonstrate not only highly successful architecture but also exemplary values. The word "business" here connotes a broader, more generalized definition than is usual. It might mean the business of religion, education, or government. It's nice that such diverse aspects of society have joined the ranks of corporate America in appreciation of the importance of success.

Architecture can be celebrated as an expression of a principle, as in the case of the U.S. Courthouse and Federal Building in Islip, New York. The


1.


2.


5.


3.


4.

building's open plaza suggests that judicial process is accessible to all; its formality expresses the stateliness of the justice system, and its tower rises like a noble beacon of authority.

The adaptive reuse of Pittsburgh's Allegheny County Jail, a historic landmark, seeks similar goals through humanizing a decaying building that begged to be saved, but lacked the resources. A design/build/lease arrangement unified seemingly disparate goals resulting in this sensitive preservation. The client, developer, and architect for the Lincoln Street Garage chose to stay downtown and reuse an existing commonplace building located along along a vehicular artery through Boston.

The relationship between employer and employees has frequently been winnowed down to nothing more than a paycheck. Not so among the companies featured here, who show a remarkable commitment to attracting good workers by providing an environment that enhances well-being. At TBWA/Chiat/Day in Los Angeles a warehouse is transformed into a creative advertising city, with themed areas of activity on either side of "main street." At Hansen Construction Office, Aspen, Colo., the gentle touch of Harry Teague transforms offices to showcase the firm's product—the execution of design itself. The Herman Miller showroom serves as the flagship selling space for its well-known furniture, finessing the firm's core values of innovation and beauty.

The minimalist aesthetic of the Helmut Lang Perfumerie in New York City drives home the message of haute couture through an old-world apothecary theme. Lastly, the Westpac Trust Stadium in Wellington City, New Zealand, represents the innovative trend of providing multiple uses in one flexible space, maximizing land use, satisfying a multiconstituency client, and providing revenue to finance the entertainment venue. These gifts of good architecture set a new standard of excellence from which good business can build. ■





6.



7.



8.

PHOTOGRAPHY: © MARIUSZ MIZERA (1), PATRICK BINGHAM HALL (2), FOTOWORKS/BENNY CHAN (3), EDWARD MASSERY (4), TIMOTHY HURSLEY (5), LYDIA GOULD (6), BRUCE MARTIN (7), SCOTT FRANCES/ESTO (8)

AND THE FINALISTS ARE...

1. **Herman Miller National Showroom,** *Chicago*
   Krueck & Sexton Architects
2. **Westpac Trust Stadium,** *Wellington, New Zealand*
   HOK Sport
3. **TBWA/Chiat/Day,** *Los Angeles*
   Clive Wilkinson Architects
4. **Adaptive Reuse of Allegheny County Jail,** *Pittsburgh*
   IKM, Inc
5. **Hansen Construction Office,** *Aspen, Colo.*
   Harry Teague Architects
6. **Helmut Lang Perfumerie,** *New York City*
   Gluckman Mayner Architects
7. **Lincoln Street Garage,** *Boston*
   Brian Healy Architects
8. **U.S. Courthouse & Federal Building,** *Central Islip, N.Y.*
   Richard Meier and Partners/The Spector Group

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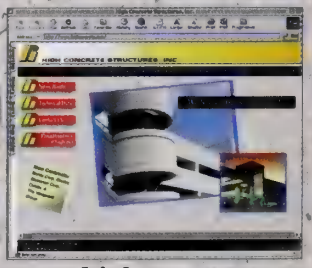
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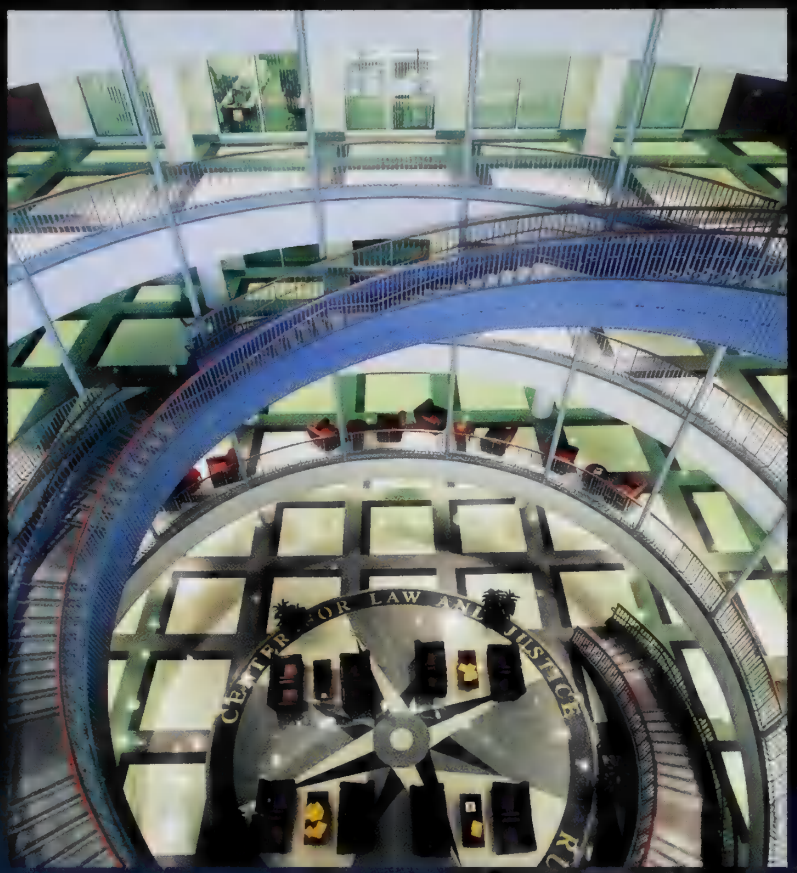
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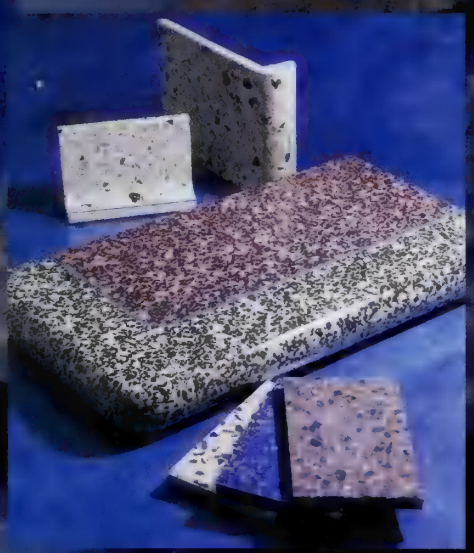
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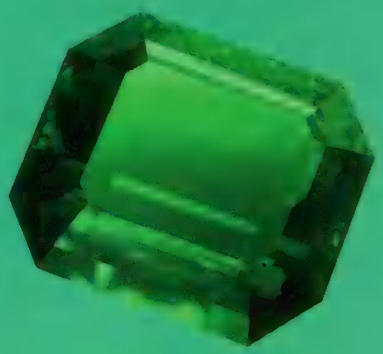
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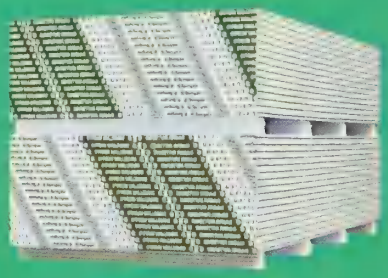
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CIRCLE 58 ON INQUIRY CARD

Behind the discreet facade of **DG BANK**, in the symbolic center of Berlin, Frank **Gehry** takes corporate architecture someplace it's never been



DG Bank's sculptured roof (right) and giant facade openings (about 10 feet wide and up to 15 feet high, below) reflect the scale of the Brandenburg Gate nearby.





PHOTOGRAPHY: © ROLAND HALBE (LEFT); WALTRAUD KRASE (TOP)

By James S. Russell, AIA

Only the aficionado would recognize the facade of Pariser Platz Number 3 as the work of today's master of architecture-as-sculpture, Frank O. Gehry, FAIA. The exterior only hints at the presence of an object within that is astonishing, menacing, and captivating all at once. Gehry calls the object a "horse's head." DG Bank, the Frankfurt-based financial-services company that built the building, prefers to call it a conference center.

The object (pages 126–127) is just a meeting room in the heart of the building, but its power cannot be denied. Is this a snarling snout that confronts us as we approach it? Is that a single, staring eye off to the left or a bit of fabric torn by a wind gust? As the visitor moves around the object, a glazed slit becomes visible, like the hinge between jaw and skull. Somehow, a few dozen metal panels has become feral, suggesting a mammalian form frozen as it struggles against the tight confines of its enclosure.

This is the Gehry aesthetic in its most psychologically naked form. And yet this object could not wield its emotive power over us without the neutral, arcaded, Douglas fir–paneled atrium that grasps it so tightly or the child's-block simplicity of the stone-clad exterior.

For this stunning contrast between object and container, Gehry must thank the rigid, highly prescriptive urban-design and zoning requirements that applied to the site. There were so many rules because Pariser Platz is, as Gehry calls it, "the Holy of Holies," the setting for the symbol of reunited Berlin: the 1788 Brandenburg Gate that encloses the Platz on the west. The square found itself in an East-West no-man's-land during the divided-city era, and most of its war-blasted ruins were bulldozed. The rules are intended to restore a polite dignity to the reconstructed buildings around the square and defer to the Gate. Even though prestigious buildings (including ones for the French and American embassies) are in various stages of planning, construction, or

Project: *DG Bank, Berlin, Germany*
Architect: *Gehry Partners Architects—Frank O. Gehry, FAIA, design principal; Randy Jefferson, project principal; Craig Webb, project designer; Marc Salette, Tensho Takemori, Laurence Tighe, Eva Sobesky, George Metzger, Jim Dayton, John Goldsmith, Jorg Ruegemer, Scott Uriu, Jeff Guga, Michael Jobes, Kirk Blaschke, Nida Chesonis, Tom Cody, Leigh Jerrard, Tadao Shimizu, Rick Smith, Bruce Shepard, project team*
Engineers: *Ingenieur Buro Muller Marl (structural); Schlaich, Bergermann und Partner (skylights and interior glass system)*
Contractor: *Muller Altvatter*

Although rules intended to recreate a historical context applied to the south facade (below), Gehry was allowed a looser interpretation in the gentle curve of the wall and the projecting apartment windows.





completion on other sites around the square, the rules intentionally preclude the sculpturally individualistic object buildings that Gehry and other of today's prominent practitioners are famous (and notorious) for.

Regulations governed height, mandated a mix of housing and office uses, and demanded daylight access for every office. Gehry didn't fight the rules. ("I never would have done a Bilbao on such a site," he says—even if there had been no restrictions.) But he built an aesthetic strategy around

"I WOULD NEVER HAVE DONE A BILBAO ON SUCH A SITE." —FRANK O. GEHRY

the regulatory regime. In the facades, he has observed the requirements for stringcourses, setbacks, and the proportion of stone wall to openings, but used them to engage the imperial scale of the square and the Gate. DG Bank's south elevation (less rule-constrained than the Platz-facing north facade) offers, by contrast, a jaunty row of plump, convex flutes (left).

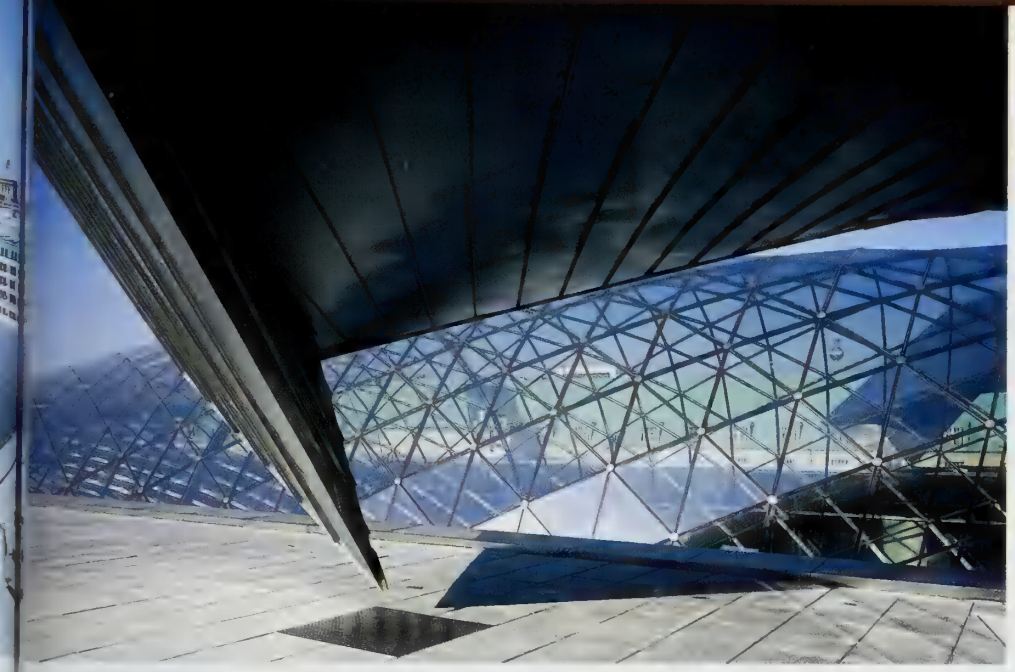
On this site, where only two narrow ends offered unencumbered exposures, meeting the daylight requirement ruled out any but a courtyard-building arrangement, Gehry concluded. So he cut a skylit atrium into the center of the building, digging it one level below grade, which packed DG's required 190,000 square feet of office space within the mandated zoning envelope. Another narrow, skylit atrium opens a membrane of daylight between the offices and 33,000 square feet of apartments wedged into a south-facing slab (see section page 128).

The design team experimented with ways to create within the atrium an "interior landscape" for staff to gaze upon. In the competition-winning scheme, the atrium was garnished with a glass sphere, a five-story-high tree, and a strange white object, something like an animal head draped in cloth (page 124).

After Gehry was selected in the competition, the bank decided to turn the building from a speculative project into its most important branch, akin to an embassy, according to Detlef Marquardt, a DG Bank vice president who is the spokesman for the project. "We see it as an emblem of reunification, the new aspirations of Berlin embodied by art and architecture," he said.

At the bank's urging, Gehry's team had eliminated the tree and the other shapes intruding on the atrium space, leaving only the shrouded-head object, which made it, as Gehry says, "the object of desire." As in other highly articulated shapes by Gehry, the final form of what would become the main conference room was ruled by intuition, honed

PHOTOGRAPHY © WALTRAUD KRASE (TOP, THIS PAGE)



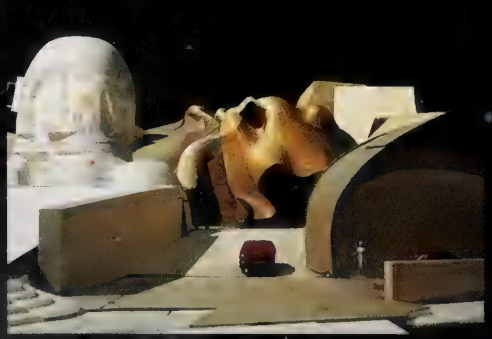
The atrium roof (opposite top and left), billows up under a metal shieldlike form that locks the lower office area (below) into the higher apartment block. Schlaich Bergermann developed a diagonal atrium glazing grid running in the same plane as members that vault from side to side (left). The bi-directional curve of the roof shape could then be made with flat-glass panels.



Of shrouded skulls and torso-shaped skylights

A study made for the unbuilt Lewis House (1) was borrowed as the shrouded meeting room in the DG Bank competition model (2). Although all the ingredients of the completed building are present in the competition submittal, they underwent an intense refinement process. The team brought in Jörg Schlaich, of Schlaich Bergermann, a structural engineer legendary in Europe for skylight structures stretched in lithe, delicate arcs. The tentative look of the overlapping glass shells of the competition design's roof

1



2



3

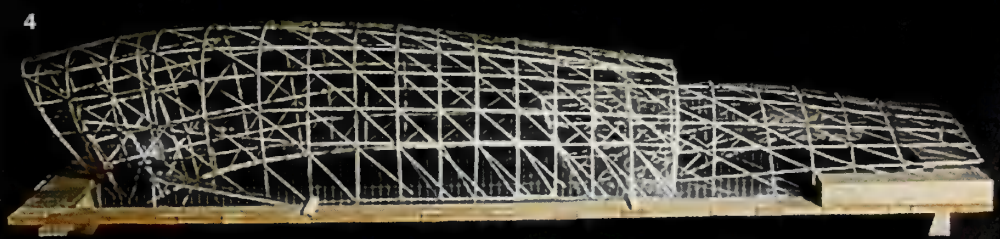


The Douglas Fir–paneled arcade in the lobby (opposite) echoes the stone-faced arcade of the Pariser Platz, while offering a first tantalizing glimpse of the atrium and its spectacular conference room. Office windows open onto the atrium at the upper floors, but on two levels, arcaded passages wrap the atrium (right).



became a single, sinuous double curve (3, 4). Cinched tight at the southern end by a fretwork of cables radiating from a hub suspended in air, the glass roof evokes a fish torso—familiar iconography in the Gehry canon. The atrium floor became glass, with Schlaich flattening the shape used in the roof vault into a bubble that isolates the below-grade meeting and reception spaces. CATIA, the computer program long refined by Gehry Partners, calculated strut and glass dimensions (all different) and guided fabricating devices at Joseph Gartner & Sons, the curtain-wall maker. CATIA was also used in the determination of dimensions for the conference room supports (shown in construction, 5).

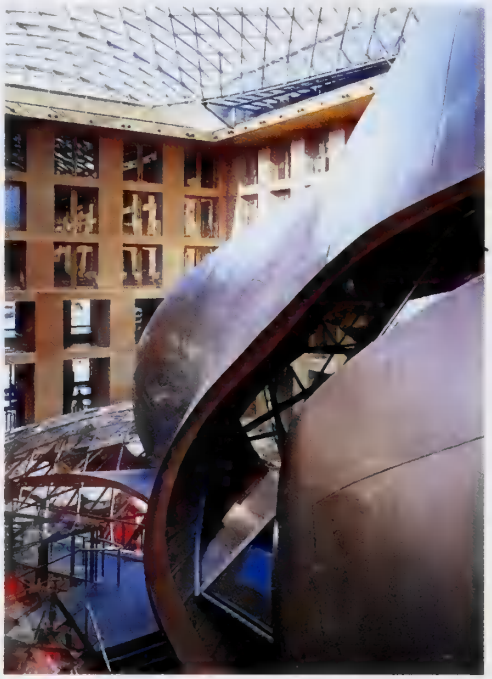
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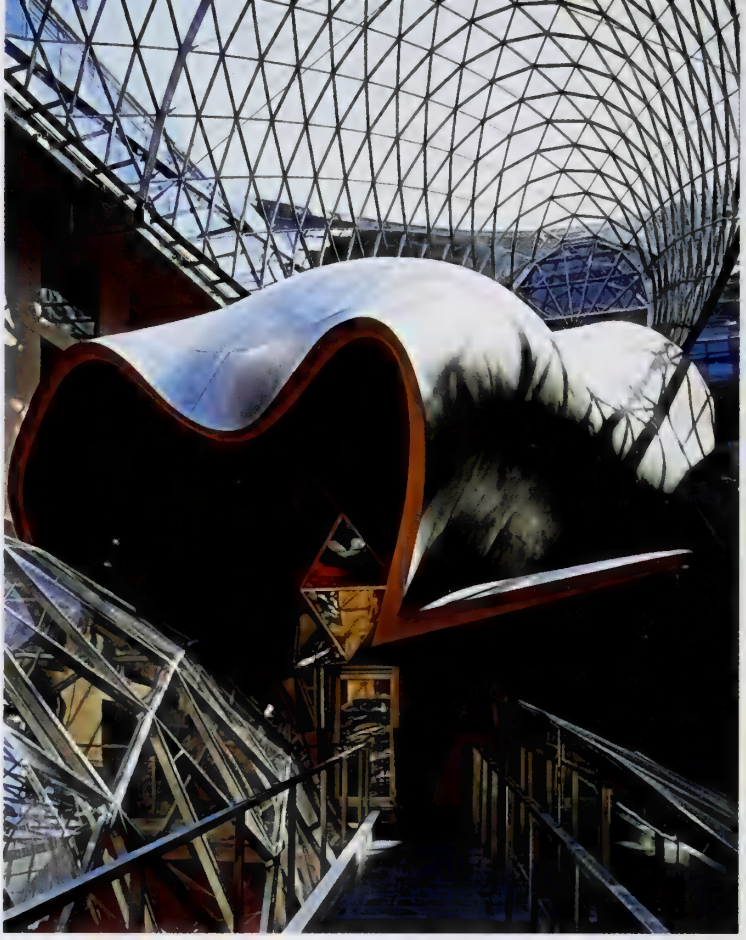


5



The evocative power of the conference room partly derives from the the sense that it is tightly confined within the wood-clad atrium (opposite). Ramps (below and right) lead to the room around a bubble of glass that covers a below-grade reception area. Gehry calls Jörg Schlaich, the engineer who worked out the glazed structure, "the best alive."







through modelmaking in a variety of media, and intended to evoke a range of metaphors and emotions without committing to any single one.

Gehry described the shape as the skull of a fossilized prehistoric horse's head when it was first developed, for the unbuilt Lewis House. Gehry credits Peter Lewis for allowing him to take his aesthetic ambitions farther than any built project ever has. "People think I'm a wild man," he explains, "but I do have a sense of propriety, and I may have edited this out if not for Lewis." Initially he simply borrowed the shape from the Lewis design to convey to DG Bank something of the nature of what he hoped to do. As he refined it, it became a means to further explore the drapelike shapes that have appeared in recent projects, especially the Experience

"PEOPLE THINK I'M A WILD MAN," SAYS FRANK GEHRY, "BUT I DO HAVE A SENSE OF PROPRIETY."

Music Project in Seattle (AUGUST 2000, page 106). Gehry is particularly taken by the work of Claus Sluter, a Dutch sculptor of the Renaissance, whose approach to drapery scholar Craig Harbison has described as "deeply undercut, as expressive as any human arms or legs could be." In one study, the architects hung red velvet to achieve the desired shape, then poured beeswax over it. Bernini did the same thing with wet plaster, but he did not have a computer digitizer to capture the result.

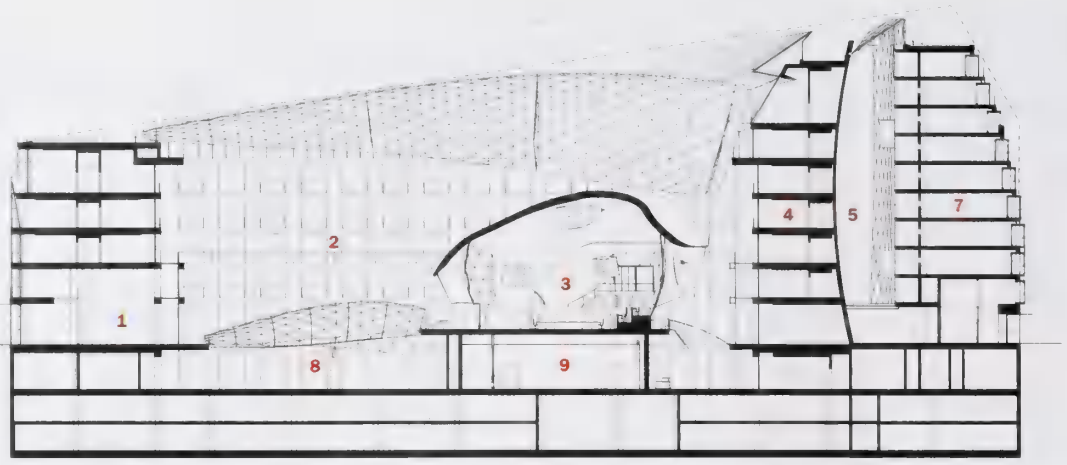
Early studies of the conference-room cladding show strips of metal shingled over each other, but that was deemed by the bank to resemble armor too closely—an inappropriate image to evoke given the disastrous consequences of Berlin's bellicose history. Gehry's team made the panels smoother, more skinlike, but also far more difficult to fabricate. After two suppliers failed to produce acceptable panels, a third finally finished the cladding 23 months after the building was occupied.

Compelling as the conference room is, it does tie the interior

PHOTOGRAPHY: © ROLAND HALBE

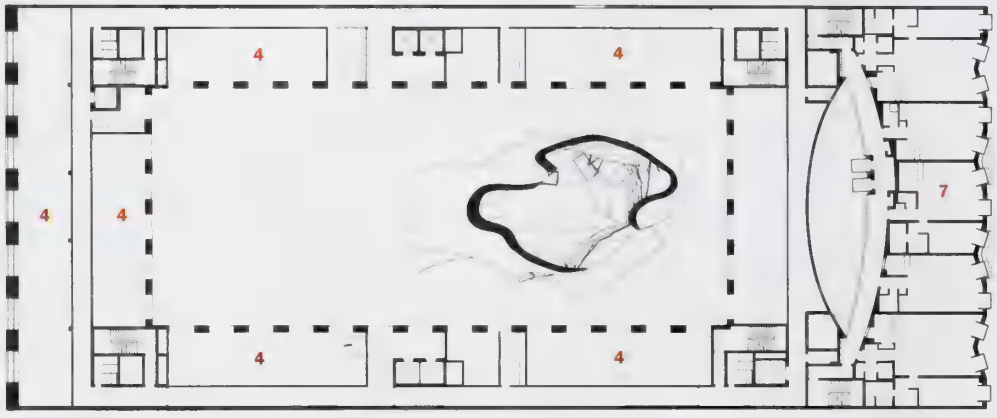


Gehry sees the conference room, the torsioned skylight roof, and the glass floor as a single sculptural piece within the atrium.

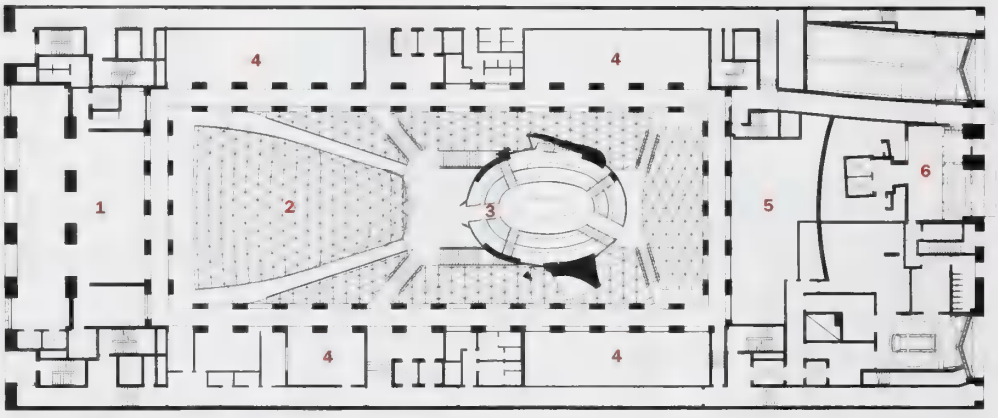


NORTH-SOUTH SECTION

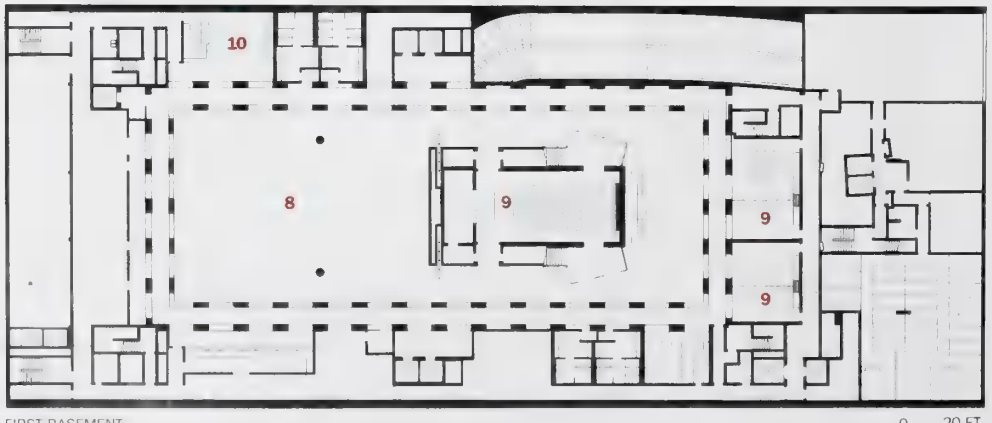
1. *Lobby*
2. *Atrium*
3. *Conference room*
4. *Office*
5. *Apartment atrium*
6. *Apartment lobby*
7. *Apartment*
8. *Reception*
9. *Meeting*
10. *Café*



THIRD FLOOR



GROUND FLOOR



FIRST BASEMENT

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Gehry Partners devised a courtyard scheme because regulations required all offices to have access to daylight and only the short sides of the lot offered direct access to light. The conference room together with below-grade meeting, reception, and dining spaces creates a fully serviced conference center that DG Bank sometimes rents out.

PHOTOGRAPHY: © ROLAND HALBE

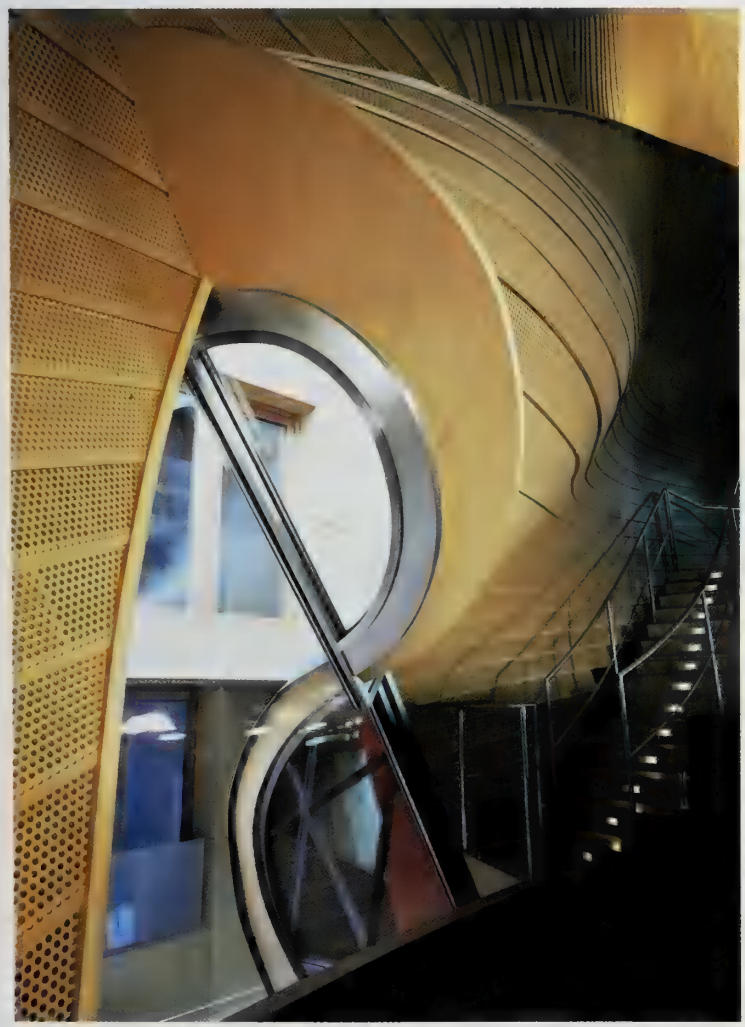


As the visitor moves to the side of the conference room, a glazed fissure becomes visible—like the rotation point of jaw and skull.



The evocative exterior of the conference room opens onto a womblike interior, lined with perforated strips of wood (this page and opposite bottom). The glass-roofed reception area is hung with glass sculptures by Nikolas Weinstein.





together. "My intent is that the conference room act as a fulcrum between the roof and the glass underneath," says Gehry, "so that you could almost remove them as a single piece." Standing in the lobby, you can see the glass above the reception floor swell up in a crystalline wave that seems to carry the conference room with it. The atrium roof appears to unfurl from behind the top of the conference room. Above the glass roof, a curve of metal projects like a prehensile fin above the glass vault, visually locking the lower volume of the offices into the higher slab of apartments behind.

Even conventional elements of this building are astonishing, like the enormous glass windows on Pariser Platz, which slide open automatically with the deliberateness of safe doors. The conference room, however, leaves behind an indelible impression—and raises questions. "It brings up a lot of subconscious stuff," explained partner Craig Webb, which he says was intentional, but, "we were worried about the darker connotations." An object that could be a sacred crypt housing the dessicated remains of some modern hero turns out to be, inside, a comfortingly womblike meeting room, equipped with all the accoutrements of modern business (opposite). Why is such powerful symbolism deployed to such a prosaic end? Gehry's designs trigger a wealth of images, which enrich the experience of his buildings. But doesn't the lack of content in the symbolism here devalue the emotions such a powerfully made piece is capable of evoking? Is this just another architectural bauble to be checked off by the tourist hordes that swirl through Berlin?

DG'S VERY POWER RAISES A QUESTION: WHY IS SUCH SYMBOLISM DEPLOYED TO SUCH A PROSAIC END?

To be sure, this is a business building, not a monument or a history museum. One can't fault Gehry for responding to the bank's pragmatic needs, while taking this structure into an aesthetic realm almost unimaginable for a commercial building. And DG Bank's extraordinary commitment to the project has added immeasurably to the artistic wealth of Berlin.

But Gehry did not want it to mean more. "It doesn't *represent* anything," he says. Indeed, after a close colleague told Gehry that the imagery sent the wrong message in history-sensitive Berlin, Gehry got assurances from a number of sources that the conference room did not make "a politically inappropriate statement." Gehry hopes people see the image as "friendly," as "about making an exciting place."

DG Bank shows that Gehry has that all-too-rare power to move us, but is he hiding his power under a bushel of deference? The ambiguity of expression is especially glaring in modern Berlin where architects of as wide-ranging sensibilities as Norman Foster, Peter Zumthor, Daniel Libeskind, and Peter Eisenman have taken real aesthetic risks in designs that attempt to grapple with the city's tragic past and its hoped-for better future. Gehry shows us he can reach into our subconscious, but does he want to take the riskiest possible course—to grab our emotions, like the best artists, playwrights, and writers do, and take us someplace we need to go? Maybe DG is just a dry run for the great commemorative or memorial project the architect has yet to build. ■

Sources

Italian limestone: *Laboratorio Morseletto*

Skylight and atrium glazing systems: *Josef Gartner and Co.*

Metal windows and entrances: *Aepli*

Wood Windows: *Schindler*

Lighting: *Erco, Zumtobel*

PHOTOGRAPHY: © ROLAND HALBE (TOP AND OPPOSITE); WALTHER MINNE (BOTTOM)



Aurora Place stands between Chifley Tower (left in photo) by Kohn Pedersen Fox and Governor Phillip Tower by Denton Corker Marshall (right in photo).

For **AURORA PLACE,** a mixed-use complex, Renzo **Piano** designed towers that sail above Sydney

By Lisa Findley

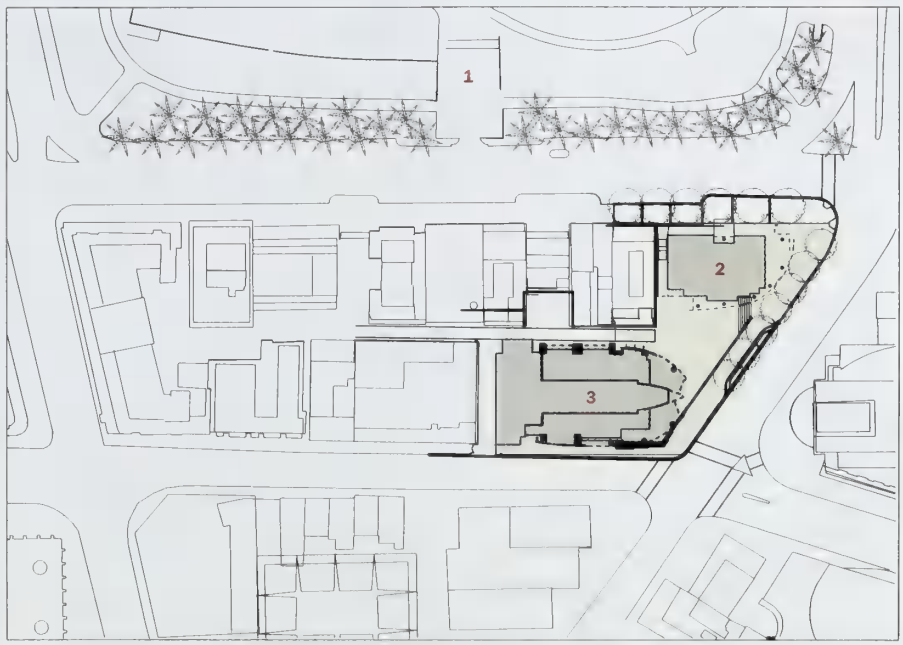
Sydney's downtown high-rise district meets the Royal Botanical Gardens at a dramatic edge that is one of the city's thrilling urban moments. The transition between wall-to-wall big buildings and the gardens' lush, cockatoo-inhabited trees consists of a single row of mid-rise, mostly residential buildings that line the street opposite the park. Looming immediately behind these modest structures are some of the Sydney's tallest buildings. The abrupt contrast between town and garden suits this bold but graceful city. Renzo Piano Building Workshop (RPBW) recently contributed to this dramatic edge with Aurora Place, a mixed-use project that occupies the end of a long, narrow urban block. On the city side, a 41-story office tower faces a public plaza, while a new 18-floor residential building rises over the gardens.

The design continues RPBW's strategy of approaching every project with a fresh perspective while drawing on the wisdom accumulated from past work. Aurora Place is classic Building Workshop: inventive, poetic, beautifully detailed, and responsible to the site's wide range of urban issues and scales.

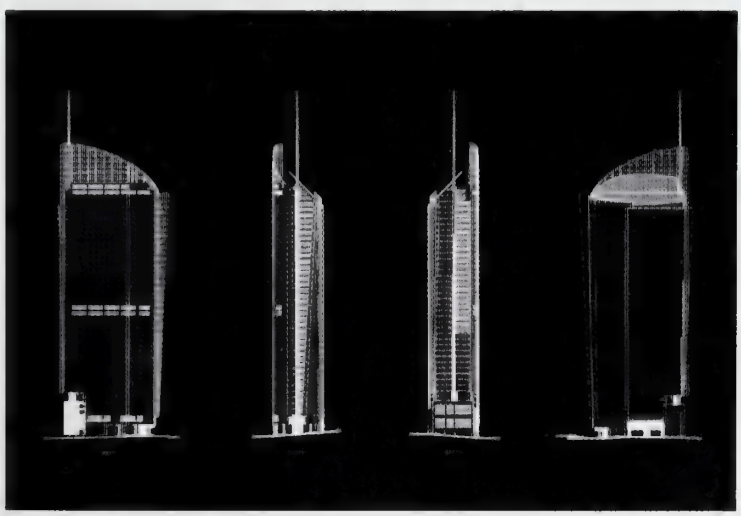
At the scale of the city, Aurora Place echoes the reference to Sydney's maritime history captured in the sail-like forms of Jørn Utzon's Opera House a short distance away. Aurora Place's sails are vertical, custom-designed glass curtain walls curving free of the building's frames. These sails are mostly white, like the Opera House's gleaming tiles, but they are much more ethereal, rendered in glass with an opaque white frit graded from 80 to 40 percent.

With its sail-like skins, Aurora Place enters the competition among Sydney high-rises for the best game with the sky. The neighboring Governor Phillip Tower (by Denton Corker Marshall, 1995), crowned with a giant grid of mirrored glass, reflects the strong Australian light so successfully that it is often unclear what is building and what is sky. Across the street, the curved reflective surface of Chifley Tower (Kohn Pedersen Fox and Travis Partners, 1993) softens the sun's hard edges in certain light. RPBW plays this game with a new strategy of visually dissolving the

Contributing editor Lisa Findley practices architecture in Oakland and teaches at the California College of Arts and Crafts. She is currently writing a book, Constructing Culture: Architecture, Memory, Politics, and Hope.



1. *Botanical Gardens* **2.** *Residential tower* **3.** *Office tower*



Project: *Aurora Place, Sydney, Australia*
Developers: *Lend Lease Development, East Asia Property Group, and Mirvac*
Architects: *Renzo Piano Building Workshop (locally represented by Innovarchi) in association with LLDG and GSA—Renzo Piano, Mark Carroll, Shunji Ishida, Olaf de Nooyer, Ken McBryde, Christopher Kelly, project team*
Engineers: *Arup in association with Lend Lease Technical Services Group and TTW (structural); Arup (facade and mechanical)*
General contractor: *Bovis Lend Lease*



The 18-story apartment tower faces the Royal Botanical Gardens with stacked porches enclosed by louvers and low-iron-glass panels (left). The sail-like glass skin of the 41-story office tower seems to peel away from the structure (left and above). A glazed canopy protects a plaza between the two buildings (opposite) with a sculpture by Kan Yasuda.

PHOTOGRAPHY: © MARTIN VAN DER WAL



top of the building into the sky by curving the swelling glass skin 100 feet beyond the the upper perimeter and reducing the density of the frit.

At the scale of the city block, RPBW treated the two buildings as cousins. They share elegantly detailed glass systems and glazed terra-cotta tile cladding and are crowned by extensions of the exuberant sails that curve in both plan and section. The office tower, however, has more glassy surfaces, while the residential building has more of the rust-orange tile that recalls the red earth of the central Australian desert. The architects treated the office tower as a freestanding object settled onto the plaza and contained by the street. The residential building, on the other hand, fits politely in with the fabric and scale of the smaller buildings facing the gardens, while not conforming with them in style. In an odd way, it is this smaller building that anchors the project to the block.



AS WITH ALL OF PIANO'S PROJECTS, AURORA PLACE SINGS AT THE SCALE OF THE HUMAN BODY.

The plaza that provides entry into the office tower absorbs a small lane that used to separate the two sides of the site. The plaza now links the two buildings—a big job, since the street level climbs 11 feet from the city side of the narrow block to the garden side. Visitors enter the plaza at grade on the lower, office-tower edge of the site, and they can continue to the residential tower on a sloping sidewalk with stairs occasionally connecting sidewalk and plaza. This slightly awkward arrangement means that the plaza with its cafés and shops is not readily visible from the street nor directly connected to the comings and goings of the residents. A huge suspended glass canopy hovering over the plaza deflects local wind conditions but creates an oddly scaled space between the two buildings.

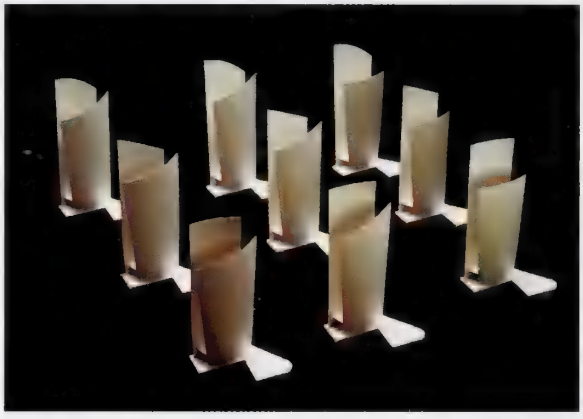
As with all RPBW projects, Aurora Place sings at the scale of the human body. All of the materials are carefully considered, thoroughly researched, and beautifully deployed. The wood and warm colors of the office tower lobby invite lingering at the café near the elevator bank. The skin's fritted glass rejects heat while transmitting daylight into the interior of the offices. The places where the glass enclosures and curtain wall can be approached are intriguing and serve as reminders of the magnitude of the technology required for a high-rise building. *(continued on page 139)*

PHOTOGRAPHY: © MARTIN VAN DER WAL

RENZO PIANO speaks with RECORD about skyscrapers and the city

The recent destruction of the World Trade Center in New York casts an ominous shadow on high-rises everywhere, especially those that aspire to landmark status. Earlier this year, well before the tragic events of September 11, RECORD's editor Robert Ivy spoke with Renzo Piano at his glazed-roofed offices overlooking the Ligurian Sea outside of Genoa. Although the topic of terrorism and its impact on skyscraper design did not arise, Piano discussed his views on building in New York, his approach to design, the problem of urban sprawl, and the role of memory in architecture. What follows are excerpts from that interview. Readers can find a more extensive version on the magazine's Web site (www.architecturalrecord.com).





ARCHITECTURAL RECORD: *You have worked in many great cities in the world—Berlin, Paris, Turin, Osaka—and now you are designing projects for New York, San Francisco, and Chicago. Do you think it's going to be hard to achieve what you want in a city like Manhattan, which has the reputation of being a tough place to build?*

RENZO PIANO: This is what architecture is about. Architecture is not an art independent from reality. Real architecture, real painting, real poetry, real music is never detached from physicality. In architecture, that's it. Architecture is at the edge, between art and anthropology, between society and science, technology and history. Sometimes memory, too, plays a part. Architecture is about illusion and symbolism, semantics, and the art of telling stories. It's a funny mixture of these things. Sometimes it's humanistic and sometimes it's materialistic.

AR: *So you're not worried about working with tough New York developers on a project like the New York Times Tower?*

RP: No. Of course they are developers. But what is wrong with that? In some ways the best client is a tough client who knows what he wants. That doesn't mean you give the client exactly what he wants. You are responsible for doing your job well. But a good building needs a good program. I don't think there is one single good building without a good plan. It's impossible. Certainly you need a good architect, but that's not enough.

AR: *You have studied ceramics and tiles more than most contemporary architects. How will you use them in New York?*

RP: Ceramics are metamorphic materials. They have a great ability to bleach and change, to echo the weather. For me, the most beautiful quality of Manhattan is its ability to change with atmospheric changes. One of the most poetic views of Manhattan is of its forest of buildings as they take the quality of the weather. New York is a peculiar place because it's very hard, very tough when you touch the ground. It's made of stone and steel. But as soon as you break from the ground and go up, you can see it's one of the softest cities in the world.

AR: *What will the New York Times building do to advance your thoughts and work? Where is it going?*

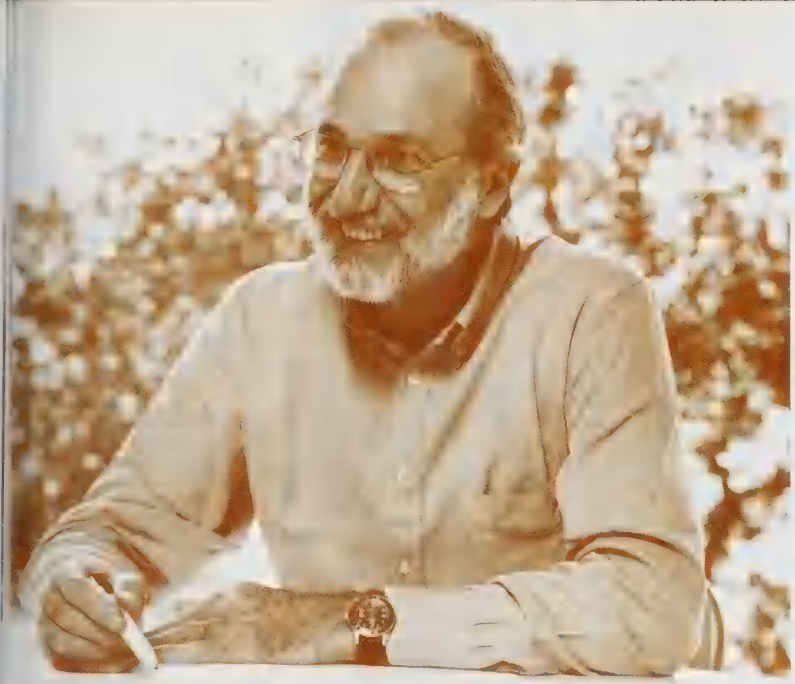
RP: This is exactly the question we ask each time. We are lucky to be able to decide what projects we want to do—not because we are snobs but because we are in a lucky position. Let's talk about expression in architecture. I like fighting gravity. Magic is essential in architecture. Working in Manhattan, I love the idea that we accept the clear and simple geometry of a building. We accept that logic. But complexity comes from

Piano comments on the WTC disaster

In an interview published in the Italian newspaper *La Repubblica* on September 21, Piano spoke about skyscraper design in the wake of the World Trade Center attacks.

When asked "Is it possible to build safer skyscrapers?" he replied, "We already know how to build skyscrapers that can resist earthquakes. Now we must devise ways to protect buildings from the kind of fires that occurred at the twin towers. The necessary technology exists and is employed at offshore oil-drilling platforms where protective coatings such as polypropylene fibers are used. There's a need to rethink security systems and make fire egress easier."

Asked what should be built on the WTC site, Piano said, "Whatever is built, there should first be a great deal of thought and reflection. It's not only an economic issue but a cultural one. What is at stake is saving the soul of a city, its spirit."



PHOTOGRAPH COURTESY RENZO PIANO BUILDING WORKSHOP

texture, from vibration, from the metamorphic capacity of the building to transform, to change, to breathe. Sometimes buildings even make sounds. You know, in New Caledonia we learned from the local culture that buildings sing. And we were actually able to do that, to make our building [the J.M. Tjibaou Cultural Centre in Nouvéa] make a sound when the wind blows. So the complexity doesn't necessarily come from geometrical complexity. The building is actually very simple. But the complexity comes from the skin, the surface of the building actually vibrating, working with the weather. In Manhattan, I think the Times building will be tough when it touches the ground and then become more light, more vibrant, more metamorphic as it disappears in the clouds. I'm working on the idea of putting a garden on the roof, so there's a garden in the sky. On the street level there will be a lot of activity: a small auditorium, a small museum for the Times collection of pictures and documents, shops—lots of street life.

AR: *Your work often centers on complex issues that are resolved simply. Can you explain your approach to design?*
RP: I came to architecture as the son of a builder, so when I was a young architect I was devoted to developing objects. I was attracted to the physicality. The piece-by-piece approach was essential to me. Then I began to understand that this is not enough. Architecture is more than just putting things together. It's about the organic, about illusions, a sense of memory, and a textural approach. I must admit, though, that I still love the idea of putting parts together. That is why my office is called the Building Workshop. I love the idea that you go from the general to the detail and then from the detail to the general. It's a double process. You cannot think about the presence of the building in the city without thinking about materiality. And when you think about materiality, you start to think about detail.

AR: *There is a lot of talk about architecture becoming virtual. What is the role of the computer in architecture today?*
RP: The computer is essential. When you make a building like, for example, Kansai Airport in Osaka [RECORD, JULY 1994, Pacific Rim section, page 26], you need a computer to optimize everything—the structure, the form. You know, computers are getting so clever that they seem a bit like those pianos where you push a button and it plays the cha-cha and then a rumba. You may play very badly, but you feel like a great pianist. The same is true now in architecture. You may find yourself in the position where you feel like you're pushing buttons and able to build everything. But architecture is about thinking. It's about slowness in some way. You need time. The bad thing about computers is that they make everything run very fast, so fast that you can have a baby in nine weeks instead of nine months. But you still need nine months, not nine weeks, to make a baby.

AR: *Let's jump around a little here. What do you think of the role of the architect in today's world? Where do we stand as a group?*
RP: This touches on the ethics of the profession and how we go about our work. Can I confess one thing? I take pleasure in what I do. Pleasure is one of the most important things. You may say this is selfish. It is not selfish.

AR: *When you accepted the Pritzker Prize in 1998, you described architects and yourself as explorers. Do you take an idea or a line and rework it or are you always looking for the new?*
RP: I think it's important to note the difference between style and coherence. If you're talking about coherence, I love it. If you're talking about style, then I start to be more suspicious. Coherence is about the experience, about using what you've been learning and reapplying it. It's not about making yourself recognizable. But architecture is necessarily about exploring. Every place is different, every client is different, every society is different. Culturally, historically, psychologically, anthropologically, and topographically, every job is different. So the real risk is that as an architect you end up imposing your stamp before you understand what is the reality of a place. I never take a new job without visiting the place, without trying to understand, without trying to get a basic, fundamental emotion. Because that's what it's all about—building emotion. I try to understand what is the real nature of a place, what is the context. My goal is not necessarily to integrate with the context. Sometimes architecture should not integrate but should make a contribution to the context.

AR: *Do you ever worry that you won't find the genius of a project or make it work?*
RP: Oh, yes, you worry about that. And the next thing you worry about is staying on track, because architecture is a very long, complex process. There are two things I worry about. In the beginning, it's finding the emotion, the basic emotion. But then, you need to find the direction and stay with it for sometimes five or six or more years.

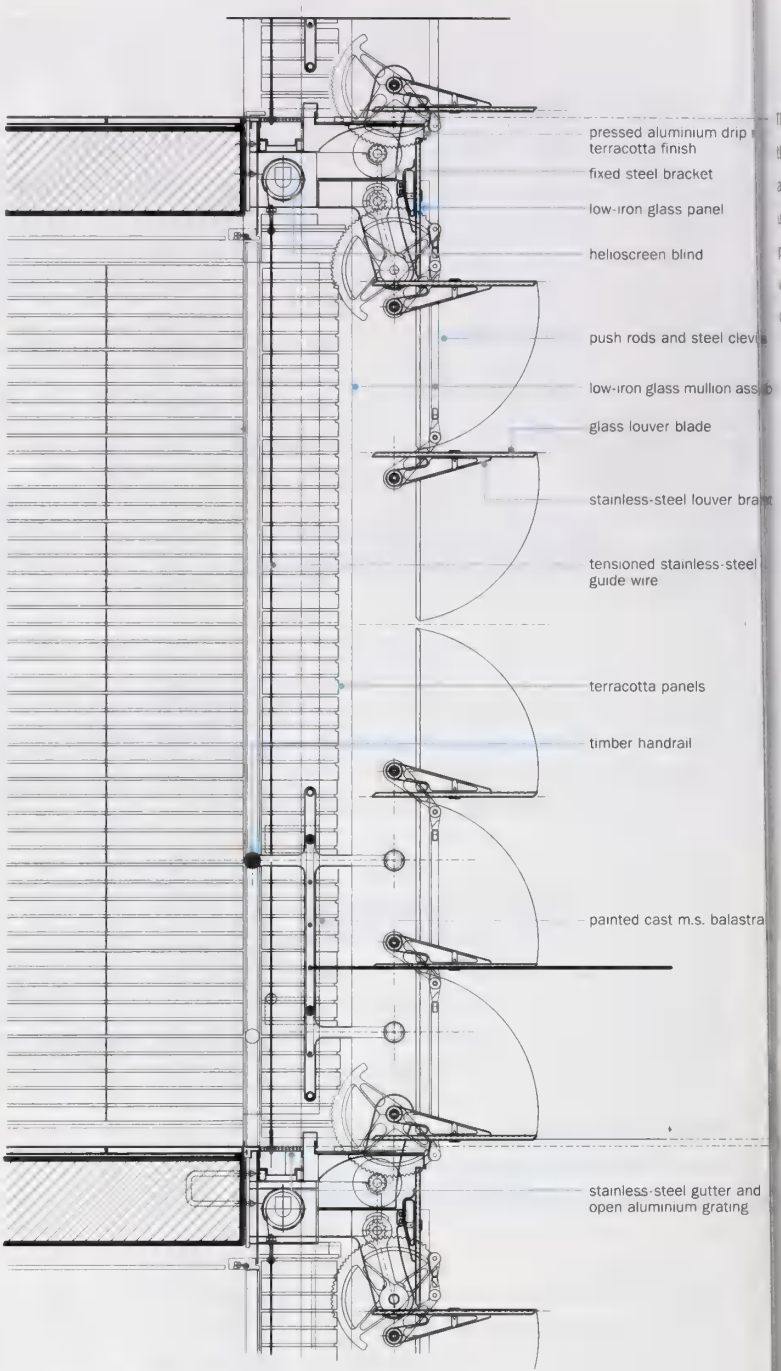
AR: *Tell us a little about how your firm operates. What is your role here?*
RP: One of my favorite roles, though not necessarily the main one, is spending time—my colleagues might say losing my time—in the model-maker's shop. I love watching things and touching. If you look around my workplace here, I have all my small working models on the wall. What I do is mentally I touch each one. They're like my children, and I go and touch each one to understand what is going on.

AR: *You've spent a lot of your career working on cities such as Genoa and Berlin. What is the state of the contemporary city today?*
RP: Right now I'm working with Milan, helping it plan its peripheries. This is going to be one of the biggest challenges in the next 50 years. How do we transform the periphery? It's not just about form, it's about content. The real trouble is that these urban peripheries are monofunctional, they're all about just one mode—production or business or housing. But after the city's big explosion, now we're seeing it start to implode. I like the idea that sustainable growth is about implosion not explosion.

AR: *There are some architects who have made careers of mostly talk.*
RP: Yes, there's nothing wrong about that. But for me, I prefer to build. ■







SECTION THROUGH EAST FACADE LEVELS 1-14

The office tower has a total of 535,000 square feet of leasable space with office space extending between 36 and 40 feet from the core to the building's perimeter. The most unusual aspect of the office floors are the winter gardens or breakout areas (top left) that have operable glass louvers to allow fresh air in. The architects used exterior materials like terracotta panels in the office lobby (left).



The 62 apartments in the residential tower are all floor-through units (right) with glazed porches featuring operable louvers (drawing opposite).



UPPER FLOOR



GROUND FLOOR

1. *Residential lobby*
2. *Retail*
3. *Plaza*
4. *Office lobby*
5. *Office*
6. *Winter garden*

(continued from page 135) In the residential structure, every apartment runs from the front to the back so that bedrooms can overlook the plaza, which is quiet at off-peak hours, while living rooms face the Royal Botanic Gardens. Made entirely of large louvered, clear-glass panels that can be adjusted or slid entirely open, the exterior wall of each living room takes full advantage of the fantastic views of the garden and the harbor beyond. And the constantly changing configurations of louvers, openings, and shades in each unit bring the facade to life.

When Aurora Place was first proposed, it met with extreme controversy because it was to replace a well-loved icon of early Australian modernism, Ken Woolley's 35-story State Office Block, completed in 1967. Sydney's architectural community agreed that whatever replaced this building should be of equal or greater caliber. With few tall buildings in RPBW's portfolio, there was some question as to how well the firm could rise to this challenge. But clearly RPBW built on what it learned from the elegant Debis Tower in Berlin's Potsdammer Platz to make a significant contribution to the urban fabric. And, in typical Building Workshop fashion, the dissolving edges and double-skin glass technology of Aurora Place already anticipates the next level as the firm works on the design of the New York Times Tower in New York City. ■

Sources

Exterior terra-cotta cladding: *NBK and Permasteelisa*
Curtain wall: *Permasteelisa*
Curtain wall glass: *Viracon*
Elevators: *Kone*
Granite paving: *Melocco; Saba Bros.*
Custom lights: *Eagle Lighting*
Glass fins steel work: *WGE*
Signage: *Central Signs*
Mast and steel sails: *Rigby Jones*
Cast winter-garden components: *Hycast Metals*
Lobby furniture: *Dedece, Schaumburge + Alvisse and Wilkhahn*

WWW For more information on the people and products involved in this project, go to Projects at **www.architecturalrecord.com**

Spherical stones in a straight line, echoing the trajectory of the building's great cantilever, mark a path to the stairs that ascend into the structure's main volume.



On Lake Constance in Austria, **Baumschlager & Eberle** has created the dramatically cantilevered **ROHNER OFFICES** overlooking a marina

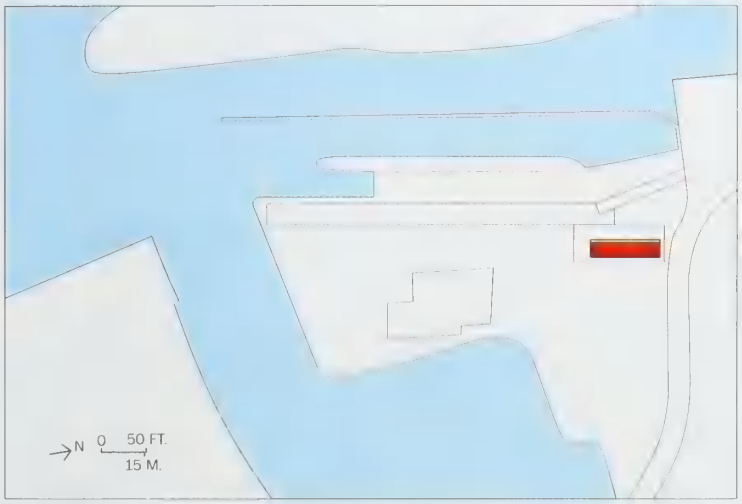
By S.A. Miller

It's like a waterbird standing on one foot," says architect Carlo Baumschlager of his Rohner building—and indeed, this small, almost entirely cantilevered structure conveys at once the absurdity and exquisite balance of a great wading bird aloft a single twig of a leg. The analogy is quite abstract: This 941-square-foot building, sited along Lake Constance in Austria, actually stands on dry ground with its boldly rectilinear, cast-concrete form hovering above a broad, though minimal, 148-square-foot footprint. Yet however stark the geometry, this structural *tour de force* evokes a range of metaphors, simultaneously recalling a waterbird, a telescope, and a dry-docked boat.

The telescope and boat are especially apt, as the Rohner building houses an office and surveillance station for the director of a marina. In 1999 Maria Rohner, who had commissioned a house by Carlo Baumschlager and his partner, Dietmar Eberle, in 1993, created a business to provide moorings as well as repair and winterizing services for recreational boaters. In Fussach, Austria, near the meeting place of the Rhine River and Lake Constance, where her family had run a gravel company, she began with only an outdoor dry-dock yard—but envisioned something far more ambitious architecturally. "I wanted a clear design with open Minimalist spaces—and no compromises," recalls Rohner, who'd known Eberle for many years. "I knew it'd be a building that people talk would about, and I didn't mind. But far more important was that the architect and I like it." She soon engaged Baumschlager & Eberle, outlining a simple brief: an office and meeting area with excellent sight lines toward incoming cars and boats, basic shower and toilet facilities for the customers, and a shelter for their bicycles and motorbikes.

In this picturesque Rhine Delta region, with distant views of the Alps, much of the architecture is traditional and influenced by the proximity of rural Switzerland. But Baumschlager and Eberle, based in nearby Bregenz, consistently transcended questions of style and local vernacular to explore, in a Modernist vein, the essence of simple materials and forms. Many of their early projects, typically boxlike with extensive use of unadorned wooden slats, are marked by an elegant lightness and an unusual attunement to proportion and detail [see MARCH 2000, page 61].

For the marina building, the architects were interested in creating, they say, a sculptural "viewing tube," focused on the lake and boatyard. They also envisioned a building that, from the approach, would



almost appear to float on water. Their solution—using cast-in-place concrete with steel to achieve a 33½-foot cantilever—offers a high and dry perch for times when the waves lap over the site. But when the lake is at its normal lower levels, this gravity-defying design, Baumschlager explains with deadpan pragmatism, "can provide shelter and storage under its cantilever for bicycles and motorbikes."

Approached from below, entry steps lead alongside the boaters' toilet-and-shower rooms to the main volume upstairs: largely a single, uninterrupted space, housing the office. Minimally efficient, its prime furnishing is long table down the center, one end of which serves as a desk, while the other provides a meeting area.

The building is essentially a box within a box: a larch shell inserted into a cast-concrete tube. "It's meant to function like a good coat," explains Baumschlager, "with an inner lining that warms you, and a tougher outer layer that shields you from the rain, wind, and snow." The larch planks, laid on the building's long axis, create a continuous interior fabric with floor merging into walls into ceiling. Horizontal slotlike windows run nearly the length of the office. The parallel courses of wood create long perspectival lines, channeling your gaze as they converge toward the tube's glazed end. Captured in a sort of tunnel vision, the views are, then, framed by the concrete shell, where it extends beyond the larch lining to form a balcony.

From the exterior, the glare-reducing setback of the glazing

S.A. Miller is a journalist who frequently covers architecture and the visual arts.

Project: *Rohner Office Building, Fussach, Austria*
Architect: *Baumschlager & Eberle Architects*
Architect of record: *Rainer Huchler*
Engineer: *D.I.Ernst Mader*





SECTION A-A



SECTION C-C



SECTION B-B

0 10 FT.
3 M.

From one side, the cast-concrete building—with calm yet precariously asymmetrical cantilevers—appears like a Minimalist sculpture.

1. *Office*
2. *Stairwell*
3. *Bathroom*
4. *Balcony*
5. *Storage*



The building appears simple at first, but its balance changes subtly from shifting vantage points. Like a vessel afloat, the structure's cantilevered main volume hovers shoulder to shoulder with the dry-docked boats around it (below).

enhances the perception of an "open-ended viewing tube." With just a few precise moves, the application of glass throughout the project sets up a flickering dialogue between transparency and reflectivity. At one end, a single pane, serving as the balcony rail, plays against the large window several feet behind it, while on the building's matte concrete sides, the shallow-set slot windows become glowing horizontal strips, each mirroring a long slash of the surrounding trees.

As in good Minimalist sculpture, the building's apparent simplicity is deceptive, altering itself the more you look at or walk around it. The structure's few asymmetries—the pedestal's position on the long axis, the location of the strip apertures, and the lateral placement of the stair with its jagged cast-concrete silhouette—subtly shift the compositional balance as vantage points change. A building of many metaphors, it can appear alternately (or simultaneously) as a pure, calm yet precariously balanced sculpture, an exquisitely impenetrable form, a breathtaking feat of structural bravura, or a box floating on air within a sea of boats on wheels. ■



Lined with larch wood, the cast-concrete building is essentially a box within a box (this page and opposite bottom). Like a continuous fabric, the wood covers the floor, wall, and ceiling. The planks—oriented on the building's long axis—create perspectival lines that converge toward the views (above and opposite bottom).

Sources
Concrete: *Oberhauser + Schedler*
Windows: *Böhler Fenster (wood)*
Doors: *Kieber Metallwerkstätte (metal); Böhler Fenster (wood)*
Cabinetry: *Hutle*

WWW For more information on the people and products involved in this project, go to Projects at **www.architecturalrecord.com**



1. *Office*
2. *Stairwell*
3. *Bathroom*
4. *Balcony*
5. *Storage*



UPPER LEVEL



LOWER LEVEL

0 10 FT.
3 M.



The Wideck for the ceiling of the Padre Pio Centre was chosen for both its esthetic and acoustical properties. We felt the linear design of the Wideck panels helped to carry the eye forward towards the altar, and that the ceilings geometry ideally complimented the exposed wood and steel roof trusses.

Paul D. Felder, AIA
The Architectural Studio, Allentown, PA



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Rays of Light

FOUR DISTINCTIVE INVITATIONS TO CROSS THE THRESHOLD OF THE ORDINARY AND EXPERIENCE A WORLD BEYOND THE EVERYDAY.

By Winifred Gallagher

Every religious building is a temple at heart. The Indo-European root *tem* means "to cut," and refers to a detachment from the everyday world, elevating the place of worship to a place of contact between the human and the sacred. Many early temples were also observatories, which fostered "contemplation," or turning one's attention to a higher reality. Over several millennia the forms of sacred architecture have changed, but one element remains the same. A religious building that doesn't invite us to cross the threshold from the quotidian into the transcendent—that doesn't invite us to contemplate—might as well shut its doors. That would mean an awful waste of space. In 2001, 50 million square feet of religious facilities were built, reflecting a marked increase of about 42 percent from the early 1990s, according to Dodge Reports. Whether church, synagogue, temple, or mosque, the best Postmodern sacred architecture, like the remarkable buildings on the following pages, helps us set aside everyday reality and direct our awareness toward a greater, more mysterious universe.

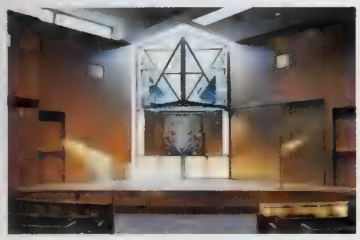
Of all the architectural means of expressing the presence of the holy, perhaps the simplest, oldest, and most eloquent is light. The poetic management of this intangible form, which seems both of this world and not, has preoccupied architects since Stonehenge. Sophisticated ancient artists from many different religions built structures that captured the sun's rays at certain times of the day or year, thus symbolizing in stone a desired harmony between the human and divine. As Christianity spread throughout the West, architects continued to preach with light. Anticipating Mies, they realized that, sometimes, less is more.

Ireland's 8th-century Gallarus Oratory might be an overturned boat made of stone. The church's only embellishment is a narrow window, barely more than a crack,



Ireland's 8th-century Gallarus Oratory's only embellishment is a narrow window opposite the door.

Winifred Gallagher's books include The Power of Place, *and* Working on God. *Gallagher's next book,* Spiritual Genius, *will be published in 2002.*



1.

Kings Point, New York

Revealed under the shallow-slope roofs of an Eisenhower-era building, Alexander Gorlin's mystical space surprises the viewer.



2.

Gulfport, Mississippi

Gothic-in-wood, with its country church associations, is the appropriate medium for this folksy seaside chapel designed by Errol Barron.



3.

Santo Domingo, Chile

In Domeyko's design, nothing is easily disclosed. The church carries on a dialogue between the abstract and the relative, with almost audible results.



4.

Kyoto, Japan

Stillness and muted light characterize Takashi Yamaguchi's austere statement on religion, nature, and history.

For 10 more places of worship, go to Building Types Study at ***www.architecturalrecord.com.*** The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

(3): TAKASHI YAMAGUCHI (4): DAVE G. HOUSER/CORBIS (RIGHT)



Salisbury Cathedral illustrates the basilica plan, the West's most ubiquitous form of sacred architecture. Its broad nave makes an ideal setting for large services, while the side aisles provide smaller gathering areas.

which produced an epiphany at every sunrise through much of the Dark Ages. Across the sea some four centuries later, Gothic architects would take a very different approach to light, using soaring stained-glass windows to turn vast stone cathedrals into membranes that barely screen heaven itself. Like their time-honored predecessors, the contemporary examples herein make inventive use of light to create sacred space.

Whether it's a temple or church, synagogue or mosque, a sacred building must be both a house of prayer or contemplation for the individual and a home for a community seeking to share its tradition. "Religion," which comes from the Latin *religare*, means to bind together. It seeks to connect us both with the sacred and each other. Accommodating religion's private and public dimensions under the same roof must have been one of the architect's earliest challenges. From the point of view of environmental psychology, the problem is one of furnishing the right level of sensory stimuli not only for two different functions, but also for two different sorts of people. Too much input from the environment impedes prayer and recollection, especially for introspective types, while too little feels cold and unsociable, especially to the extrovert. Culture, too, helps determine the right sensory balance, so that a religious building that might seem overly austere to American Christians can exemplify serenity to Japanese Buddhists. A case in point is the extreme simplicity of the White Temple by Takashi Yamaguchi and Associates of Osaka, Japan, which follows on these pages.

One enduring architectural approach that protects the private without alienating the public is the basilica, with a variety of improvisa-

OF ALL THE ARCHITECTURAL MEANS OF EXPRESSING THE HOLY, THE SIMPLEST, OLDEST, AND MOST ELOQUENT IS LIGHT.

tions. In Roman times, this large rectangular hall was commonly used for civic functions, such as courts of law. With an altar in its apse, the basilica's broad nave made an ideal setting for Christianity's mass and other large services. The building's two colonnaded side aisles also provided spaces for small shrines and chapels suited to private devotions. The flexible basilica plan was modified for use by other religions as well, and remains the West's most ubiquitous form of sacred architecture. St. Peter's by the Sea in Gulfport, Miss., seen on these pages, is a contemporary version of this style.

Modern-day representations of public and private places for worship can sometimes veer to the extreme. The modern megachurch, whose evangelical congregations number in the thousands, at first glance seems to have little in common with basilicas, much less temples. These huge religious complexes, which may include gyms and food courts, can look more like community colleges or arts and entertainment centers than churches. This new sacred vernacular is not for everyone, yet it presciently recognizes some important new elements in our changing religious landscape.

Americans increasingly define religion in terms of their personal spirituality, rather than as institutional authority. They're much less inter-

The Live Oak Friends Meeting House in Houston, designed by Leslie Elkins Works, with a "skyspace" light installation by James Turrell, is a place where private contemplation is reinforced through the restraint and simplicity of design.







The Church of Latter-Day Saints in Salt Lake City by Zimmer Gunsul Frasca Partnership is a modern megachurch, looking more like a community college or entertainment center than a church.

ested in denominational boundaries and abstract dogma than in religious experiences that illuminate and improve their lives right here, right now. Instead of a sanctuary featuring stained glass and sedate hymns on the organ, the core of the megachurch is a big auditorium equipped with state-of-the-art audiovisual systems. Professionals playing contemporary music, actors presenting sermons in dramatic form, and slides or films flashing overhead unite the huge congregation in a rousing public spiritual experience. Then, to provide religion's more private component, the megachurch offers numerous meeting spaces for as many as a hundred small groups that gather each week for diverse religious and social purposes.

The recently completed Live Oak Friends Meeting House in Houston, Tex., designed by Houston architect Leslie Elkins, with a "sky-space" light installation by Arizona artist James Turrell, reflects an opposite extreme, where private contemplation is reinforced through the restraint and simplicity of design. But like the Meeting House, the megachurch is an architectural attempt to lift up a religion's central message rather than its historical past, with its sometimes anachronistic associations. Previous generations of Americans evoked their spiritual traditions by reproducing the churches and synagogues of "the old country." As the nation becomes more socially and religiously pluralistic, this historicist architecture seems fusty and out of step. Stripped of the architectural symbols that proclaim "members only," the suburban megachurch—much like the urban storefront church—looks and often functions like a community center because it welcomes visitors with many different backgrounds, hopes, and needs.

The megachurch illustrates the fact that today, as clergy often put it, "there's more religion going on in the church basement than in the church." For many people, the core of spiritual life is no longer the big weekly worship service, but a prayer group, seniors' or youth program, AA meeting, or religious class conducted under a congregational umbrella. Even smaller churches and temples increasingly find that they are in effect a constellation of mini-congregations. Then, too, at a time of widespread financial, environmental, and social concern, many members are unwilling or unable to support religious real estate that is used only one day a week for an hour or two. The growing trend of putting sacred spaces to multiple uses may seem modern, but it has at least one venerable precedent. Judaism makes no sharp distinction between studying the Torah and prayer. In Orthodox synagogues, or shuls, scholars may study scripture six days a week in the same space that, on the Sabbath, accommodates the whole congregation for worship.

Some of its forms and functions change over time, yet like the ancient temple, sacred architecture will always mean a special place cut off from the mundane that encourages the contemplation of the mysterious. As Ralph Waldo Emerson, the poet-philosopher, ordained minister, and father of America's independent spirituality, put it, "I like the silent church before the service begins, better than any preaching."■



In Orthodox synagogues, or shuls, scholars may study scripture six days a week in the same space that accommodates the congregation for worship on the seventh. Shown is the Mesivta Yeshiva, New York City, by Fox and Fowle.

North Shore Synagogue
Kings Point, New York

1 **ALEXANDER GORLIN ARCHITECTS HAS DESIGNED A HIDDEN SANCTUARY, REPLETE WITH BIBLICAL AND MYSTICAL SYMBOLS.**

By Michael J. Crosbie

Project: *North Shore Synagogue, Kings Point, New York*
Architect: *Alexander Gorlin Architects—Jason Federbush, project architect; Stephen Ray Fellman Architect, associate architect; Alexander Gorlin, Glenn Goble, David Gissen, Brendan Cotter, design team*
Client: *North Shore Hebrew Academy*
Engineer: *Ross Dalland, P.E.*
Consultants: *Kugler-Tillotson (lighting); Scarborough Acoustics, Inc. (acoustical); Sheldon Lazan (HVAC); The Sear-Brown Group (site engineer)*
Stained glass: *Alexander Gorlin Architects*
General contractor: *P.J. Wyer Construction, Inc.*

Size: *5,000 square feet*
Cost: *$1.25 million*

Sources
Exterior cladding: *Belden Stark (brick masonry)*
Roofing: *Carlyle (elastomeric)*
Windows: *Kawneer (aluminum)*
Glazing: *Viracon*
Skylights: *Exarc Skylights*
Doors: *Kawneer*
Metal doors: *Aileron Design*

WWW
For additional places of worship and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

Program

Orthodox Jews in Kings Point, Long Island, needed a place to worship. The closest synagogue was accessible only by car, the use of which is prohibited on the Sabbath. The North Shore Hebrew Academy was close by, but had no worship space. The academy was in need of an auditorium for its 1958 facility—a former public school. Could both needs be filled with a single, small addition?

Architect Alexander Gorlin's sensitive insertion needed to fill all the program requirements for worship, but had to do so within a height of 45 feet above sea level. The existing grade was already at 27 feet, which left a scant 18 feet in which to call forth some semblance of the sacred. The exterior design also had to honor the rather bland brick style of the original. The new addition, built into the side of a hill, seats 210 and is used every Sabbath and holiday for this congregation of families.

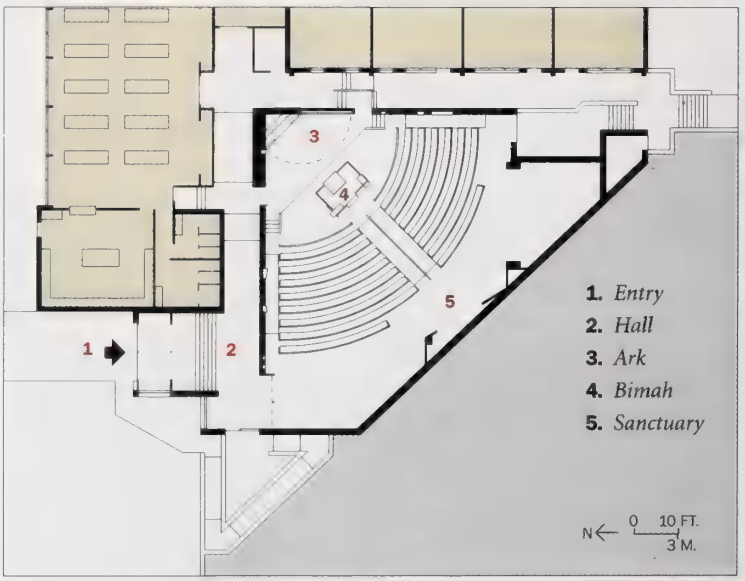
Solutions/Intentions

The design occupies the corner of two of the academy's classroom wings. A modest entrance pokes its way under the shallow-slope roofs of the Eisenhower-era building, doing little to prepare one for the mystical space within. Where he couldn't raise the bridge, the architect lowered the river. He sank the floor to gain height, and at the ceiling spun a thread of colored light with custom stained-glass clerestory windows of his design.

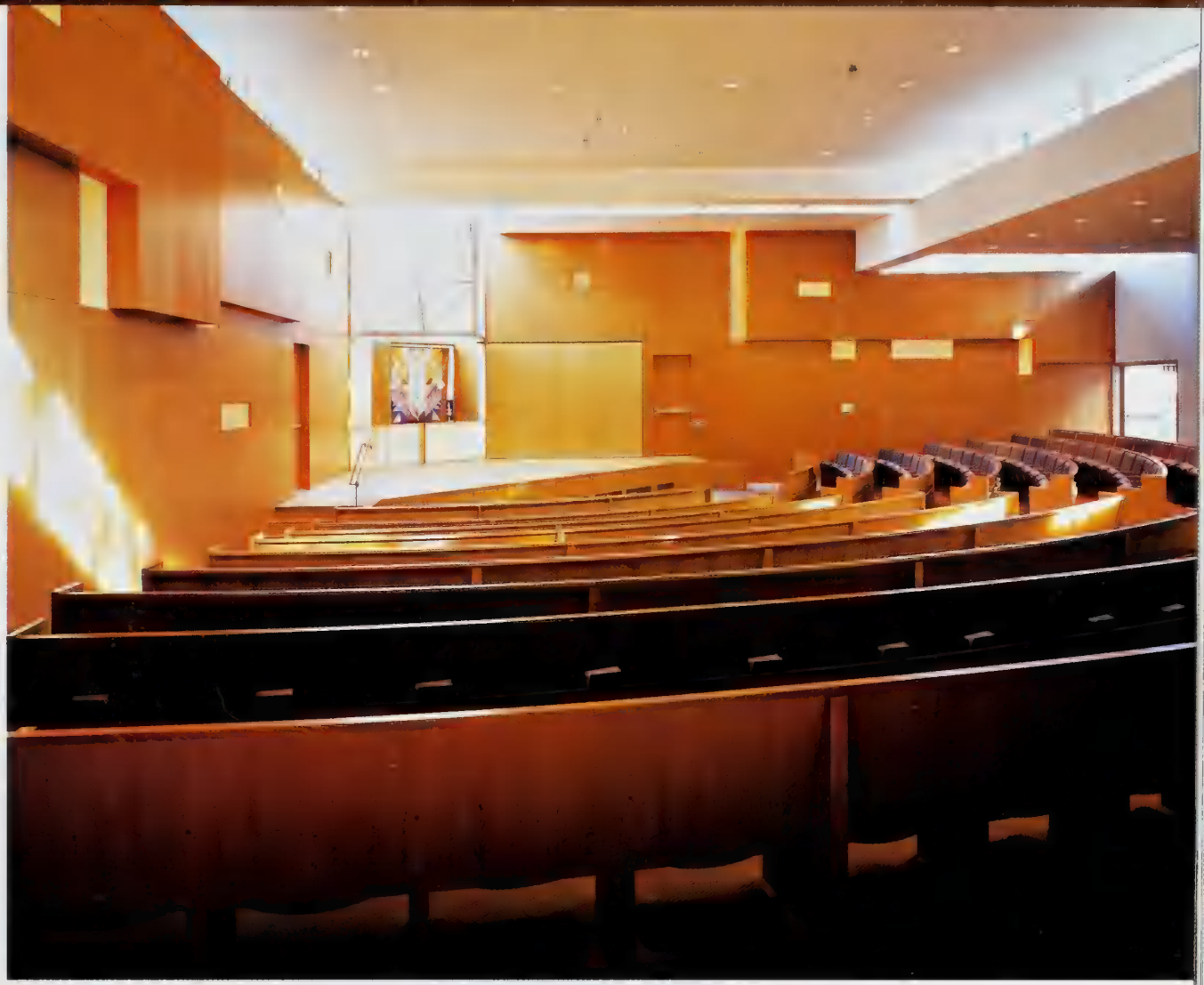
According to the synagogue's rabbi, Marvin Tokayer, the use of colored light through the windows lends a sense of awe. The interior wall and roof surfaces appear in flux, sliding past each other. One brass-paneled wall actually pivots and rolls back to cover and protect the ark when the sanctuary is used as an auditorium.

For the sanctuary's central focus, Gorlin evokes a passage from

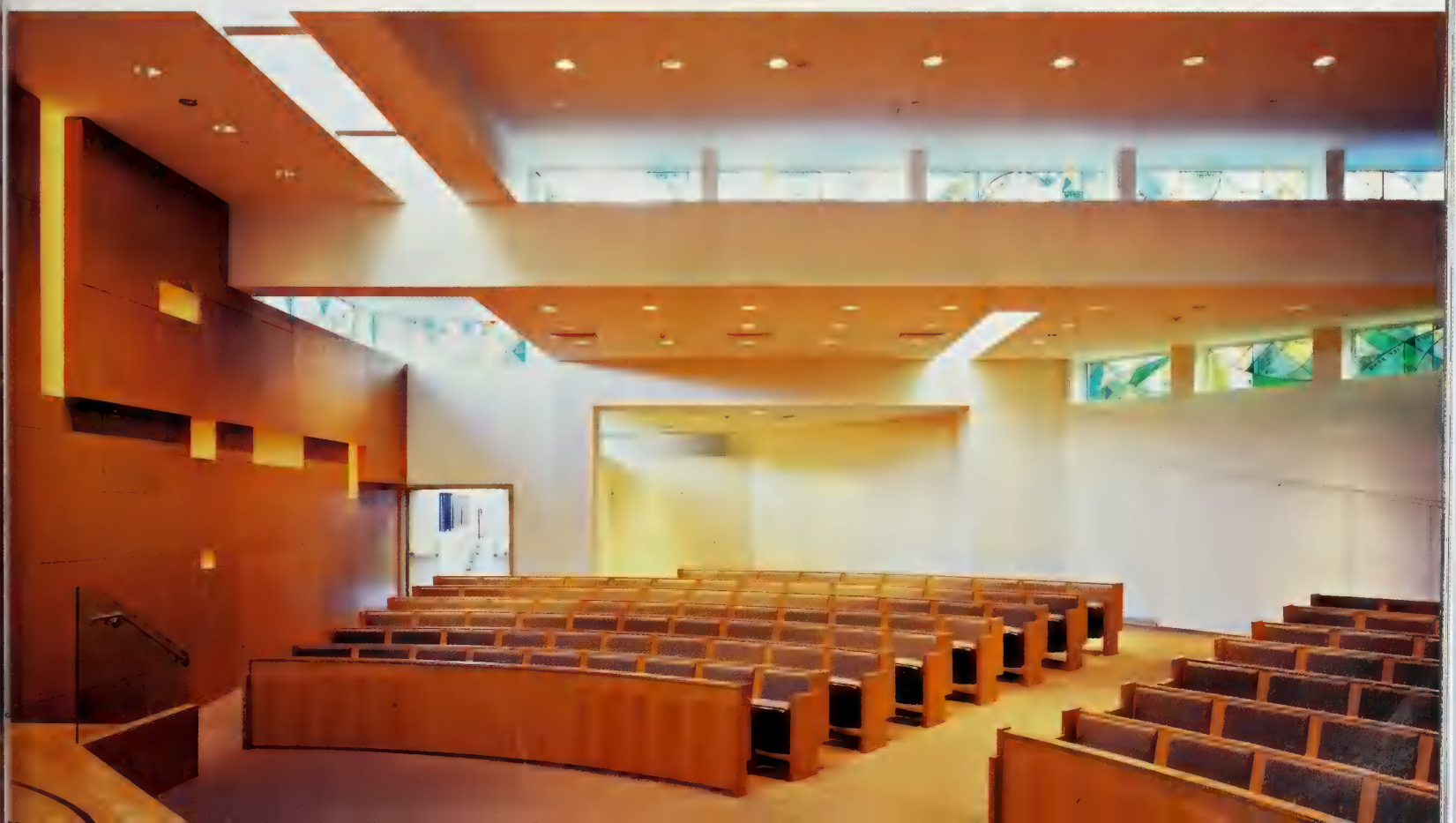


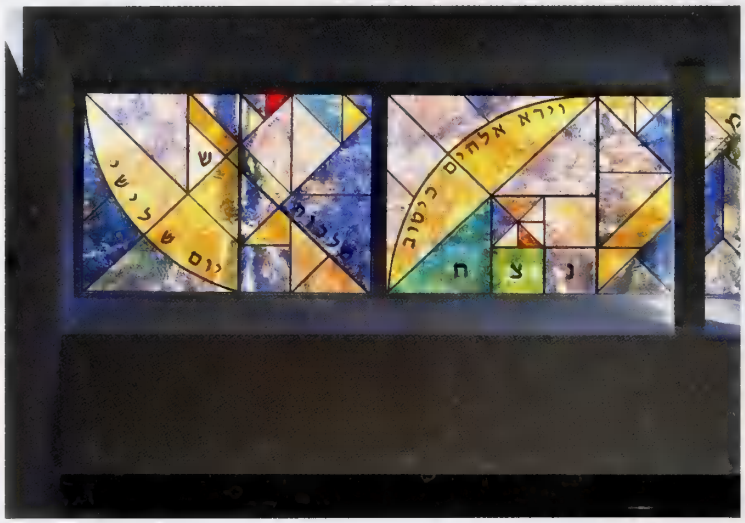


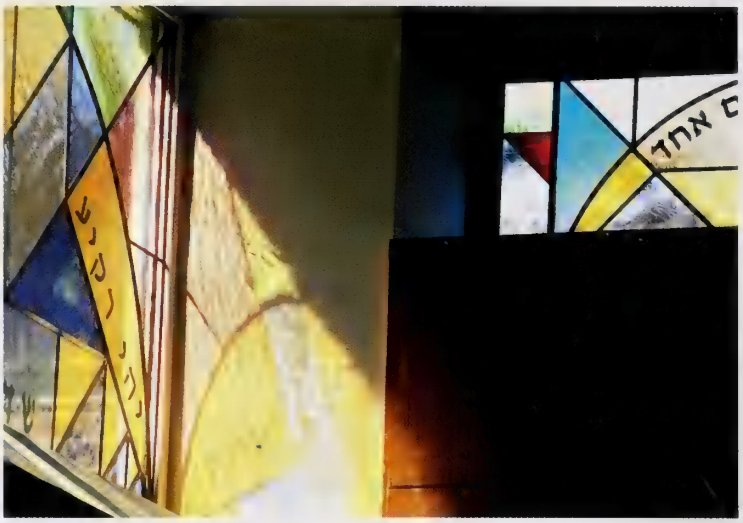
Michael J. Crosbie is the editor of the journal Faith and Form, *and an architect with Steven Winter Associates.*

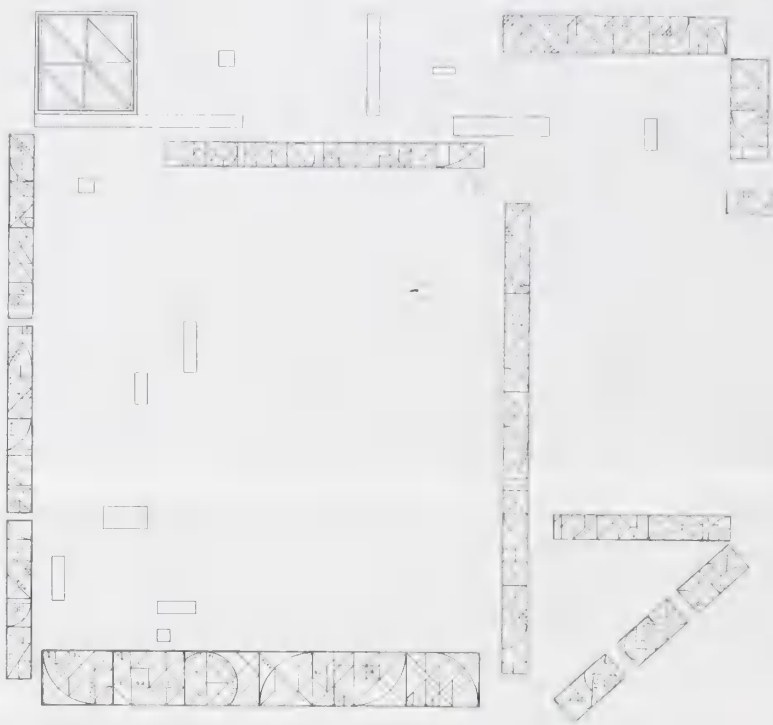


The architect's sensitive insertion needed to fill all the program requirements for worship, but had to do so without exceeding 45 feet above sea level. The new addition, built into the side of a hill, seats 210 and is used every Sabbath and holiday for this congregation of families (right, below).

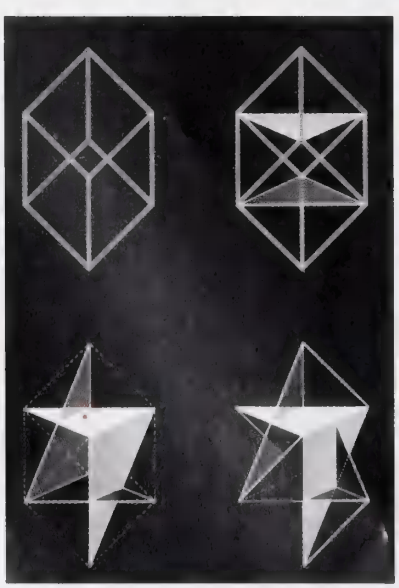








Stained glass clerestory windows spin a thread of colored light (top). The layout (left) shows the interrelationship of glazing, stained glass, and mirrors. A central focus is a cube with an intricate assemblage of fractured planes within (below).





the Old Testament's First Book of Kings, which provides an architectural description of the Holy of Holies in Solomon's temple: that it was "20 cubits long, 20 wide, and 20 high"—a cube of about 30 feet. While much smaller, North Shore's cube is designed to serve as a symbol of this sacred place in Judaism.

Over this symbol is laid a second: an intricate assemblage of fractured planes within the cube that recalls the Kabbalistic creation myth, in which the order of the original universe is shattered. Inside of this broken structure floats the Eternal Light contained within a geometric vessel that appears as a fusion of triangles. Directly below the shattered cube is the ark, the doors of which open to reveal a ritual curtain, or parochet, that covers the Torah within. The design of the parochet includes the Kabbalistic diagram of the *sefirot* and their Hebrew names.

A passage in First Kings notes that narrow clerestory windows were made in Solomon's Temple. At North Shore, the clerestory windows recall the tradition of assigning different colors to the light of the *sefirot*. The creation story is told through the windows, right to left, as each panel's geometric pattern and color suggest a day: the creation of light; of the sky; of vegetation; of the sun, moon, and stars; of the animals; and of woman and man. The last window, on the west wall, is the Sabbath—the day of rest. Says Rabbi Tokayer, "The space is very mystical, a meeting of the divine and the human." ■

PHOTOGRAPHY: © PETER AARON/ESTO



Two inverted triangles shift against each other, suggesting a Star of David at certain angles or the "emanations of the *sefirot*" from the Kabbalah (below, right).

St. Peter's by the Sea
Gulfport, Mississippi

2 **ERROL BARRON AND MICHAEL TOUPS ARCHITECTS DOMESTICATES THE EPISCOPAL CHURCH WITH THE ARCHITECTURAL LANGUAGE OF CARPENTER GOTHIC.**

By Christine Kreyling

Project: *St. Peter's by the Sea Episcopal Church, Gulfport, Mississippi*
Architect: *Errol Barron/Michael Toups Architects—Errol Barron, FAIA, partner-in-charge and project architect; Michael Toups, FAIA; Steve Olson, AIA; Byron Mouton, AIA; James Carney*
Client: *St. Peter's by the Sea—John Caridad, rector; Doug Singletary, chair of building committee*
Consultants: *Zehner and Bouchon (structural engineers); Canon Engineering (mechanical and electrical)*
General contractor: *George P. Hopkins, Inc.*

Size: *12,500 square feet*
Cost: *$2 million*

Sources
Structural system: *Steel frame with metal stud infill*
Exterior cladding: *Lower section of church building—portland cement stucco with finish coat of synthetic stucco; upper section of church building—western red cedar board and batten; parish hall—western red cedar board and batten*
EIFS: *Final coat on stucco only*
Roofing: *16 oz. copper on steeple*
Tile/shingles: *GAF Slateline*

WWW
For additional places of worship and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

Program
St. Peter's by the Sea wanted to return to tradition after a lengthy sojourn in 1950s architecture. "The almost industrial style of the building had not worn well," says rector John Caridad. "We wanted something that looked more like a church." A new site was located, across Highway 90 from the beach, on one of the few stretches of casino-littered coastline still dominated by residential architecture.

Rector and building committee asked architect Errol Barron for a 200-person-capacity church, a 24-seat chapel, and space for a large organ and choir. Other requirements included a parish hall, offices, classrooms, storage, and an outdoor area for informal gatherings.

Solutions/Intentions
Barron located the church facing the neighborhood street "because there was no good way to get traffic in and out" along the busy beach highway. The other building occupies the highway side, set behind a shady lawn. This multiuse, one-story structure with dormers reads like a house from the highway, reinforcing the residential context.

While Barron describes himself as "a modernist at heart," here he employed the architectural language of Carpenter Gothic. This style is rooted in the 19th-century pattern books that championed the Gothic for the country cottage. "The site lies at the end of a string of remarkable wooden buildings," Barron explains. "The Gothic-in-wood, with its country church associations, seemed appropriate. Keeping the building chapel-like when it's actually much larger was tricky."

Barron manipulated the perception of scale by dividing the exterior of the church horizontally, into an upper facade of wood and, to the height of the low side aisles, a stucco base with an acrylic finish etched to look like masonry. He also placed four peaks on the bell tower rather than a single and more massive cap. The verticality of the board-and-batten siding is suitably Gothic, the cedar stained rather than painted for a rustic finish. The broad eaves, with their long rafter tails and brackets, cast shadows that further texture the surface. The brackets also help the building to resist winds in this hurricane-prone



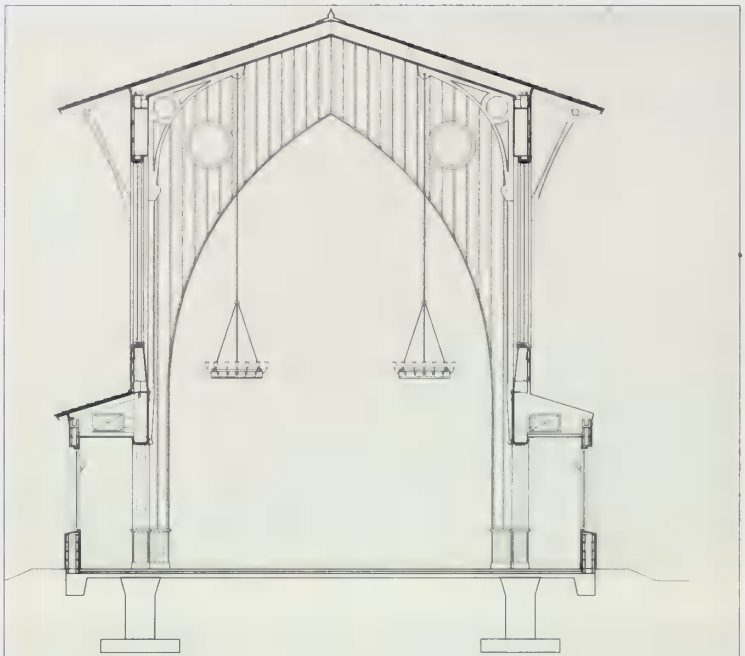
PHOTOGRAPHY: © ALAN KARCHMER

Christine Kreyling is a freelance writer who serves as the architecture and urban planning critic for the Nashville Scene.

St. Peter's is integrated by means of a breezeway connecting church with terrace and parish hall porch. A pavilion of lattice frames the path to the gulf (right, below).



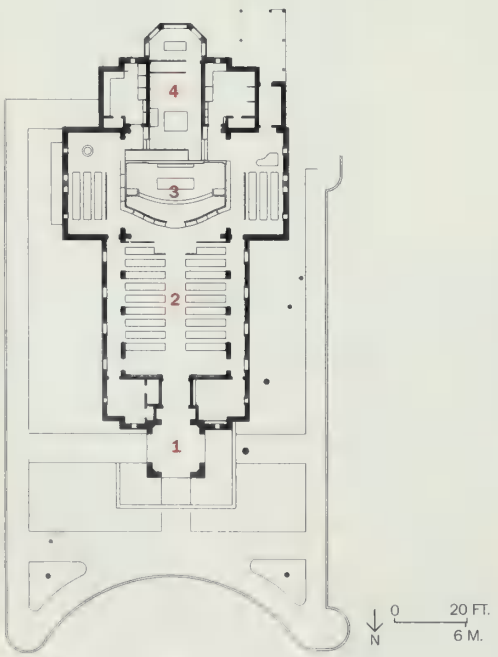




SECTION OF NAVE

1. *Porch*
2. *Nave*
3. *Altar*
4. *Chapel/choir*
5. *Covered walk*
6. *Sea pavilion*
7. *Parish hall*
8. *Playroom*
9. *Nursery*
10. *Classrooms*
11. *Office*
12. *Porch*







area. "They literally hold the roof on," Barron says.

For the interior the architect rejected the currently fashionable central plan as "too secular. The congregation preferred the more formal traditional nave, but we pulled them closer to the altar by means of the transepts," Barron explains.

The most striking feature of the plan is the interlocking relationship between church and chapel. Screened by the reredos behind the altar, the chapel serves as choir space for Sunday services, with the organ recessed into its floor. Choir and organ are thus hidden from the congregation, suggesting a heavenly source for the sound. When the chapel is used for discrete services, chairs are turned to face the altar, and the clear glass apse that pushes south into the prayer garden provides views of live oaks, beach, and gulf.

Interior materials—brick-and-slate floors, board-and-batten and beaded wood, mahogany trim with a nautical spar varnish—reinforce the country church character. Side aisle windows are stained glass, blocking unsightly views, and clear lancet windows in the nave offer vistas of sky and clouds.

Comments

St. Peter's is integrated by means of a breezeway connecting church with terrace and parish hall porch. A pavilion of lattice, wrapped around a live oak, frames the path to the gulf.

Rector Caridad is pleased with the church's adaptability to concerts, opera, and plays. "Music is an important part of our program," he says. "In the 2000–2001 season we hosted nine events. The acoustics are phenomenal."

For architect Barron, Carpenter Gothic proved compatible with the more contemporary forms he prefers. "The severity is not so different from Modernism. And there's an interesting tension between the almost hokey wooden Gothic and the great stone cathedrals to which it refers." ■

PHOTOGRAPHY: © ALAN KARCHMER



The architect rejected the currently fashionable central plan as too secular. The congregation preferred the more formal traditional nave, pulled closer to the altar by means of the transepts.

Santa Maria de las Brisas
Santo Domingo, Chile

3 **FERNANDO DOMEYKO'S CHURCH SPEAKS SOFTLY OF THINGS ANCIENT AND MODERN, TRANSIENT AND PERMANENT, PHYSICAL AND SPIRITUAL.**

By David Dillon

Project: *Santa Maria de las Brisas, Santo Domingo, Chile*
Architect: *Fernando Domeyko Pérez*
Production team members: *Eric Mar, Benjamin Black, Jack de Volpine, Duncan Kinkaid, Jonathan Lavery, Mathew Noblet, Richard Olson, Sean Kwok, Steven Lee, Talia Braude, Alfred Gutierrez, Anthony Montaldo, Joel Turkel, Euhee Kim, Christopher Nutter, David Wiborg, Susanne Mae, Amy Lee*
Client: *Condominio las Brisas de Santo Domingo*
Engineers: *Eduardo Spoerer, Spoerer y Asociados Ingenieria, Ltda. (structural); Timothy Eliassen, TryPyramid Structures, Inc. (mechanical); Steven Varga, Waclaw Zalewski (structural consulting); Kurt Wagner, BOSE (acoustical)*
General contractor: *Ignacio Hurtado, Ltda.*

Size: *3,600 square feet*
Cost: *$2.5 million*

Sources
Wood Fabricator: *Mario Wagner, R.G. Ingenieros, Ltda.*
Stainless steel: *Afredo Gredig, Nautivelas, Ltda.*

WWW
For additional places of worship and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

Program

Imagine an egg sitting on a table, then reimagine the table as a grassy plateau with a forest at one end and the Pacific Ocean at the other, and you have the form and the context for Iglesia de Santa Maria de las Brisas.

Designed by Chilean architect Fernando Domeyko, the church is located in a fashionable suburb of Santiago, Chile, which, like its American counterparts, is a centerless sprawl of overstuffed houses and exclusive golf courses. In 1995, Domeyko won a design competition for a small meditation chapel, only to have his victory annulled when the community decided that what it really wanted was a church that would seat 350. Domeyko won that competition as well, getting the news the day before he returned to his teaching post at MIT.

In his mind, the church is both an island of urbanity in a suburban place and a means of enriching the spiritual and intellectual lives of the residents. "I wanted to design a building that was rooted in something larger than itself," he explains, "in nature or the environment. A place where you lose all sense of time in contemplating the arc of light and the forces of gravity."

Contributing editor David Dillon is the architecture critic for the Dallas Morning News *and the author of six books.*



PHOTOGRAPHY: © FERNANDO DOMEYKO (LEFT); JUAN PURCELL (RIGHT)

Solutions/Intentions

Timelessness is implicit in the oval—a shape without beginning or end—as well as in the building's conspicuous evocations of ancient precedents, from Stonehenge to Inca fortresses to 11th-century Spanish churches. Yet the architect also chose the oval because it is strong, like an egg, and able to withstand the powerful earthquakes that are common in the region. And because it lacks corners and sharp edges, it doesn't generate winds that could damage the nearby stand of rare boldo trees, which are valued for their medicinal properties.

Visitors approach the church from the forest edge, passing beneath a spare modern bell tower and colonnade to an entry plaza, which is partially bermed to hide the houses beyond. The circuitous route is an abbreviated pilgrimage, designed to empty the mind of worldly distractions before reaching the final destination.

Though barely three years old, Santa Maria de las Brisas already looks ancient. Oil from the concrete forms has mottled its exterior, to which an oxidizing copper roof has added flowing green stripes, as in a Morris Louis painting. The interior is spare and dark, with only indirect light on the first level and narrow slots of light above, as though the entire sanctuary were a celestial observatory. The altar faces the sunrise, as in ancient temples, with

Visitors approach the church from the forest edge, passing beneath a spare modern bell tower and colonnade to an entry plaza. The circuitous route is an abbreviated pilgrimage, designed to empty the mind of worldly distractions before reaching the final destination.





the morning light forming a stunning abstract cross behind it.

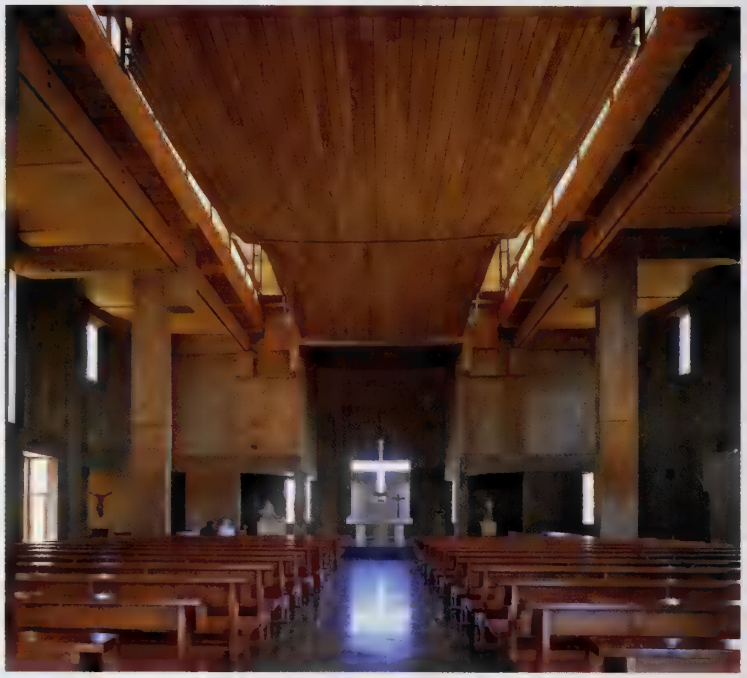
Yet within the fluid shell Domeyko has created a smaller rectangular space defined by four tall concrete columns. Structurally, the columns stabilize the egg and keep it from flying apart in earthquakes; ritualistically, they create a church within a church where intimacy and infinity meet.

Overhead hangs a double-curved acoustical ceiling, shaped like a cello or the hull of a boat, and finished in a blond wood that brightens the dark interior. The ceiling slopes downward from the choir loft, compressing sound toward the congregation, then upward over the altar to give the celebrant's voice room to soar. The pale wood provides a mellow counterpoint to the raw concrete, its supple forms playing against the rectangular columns and beams.

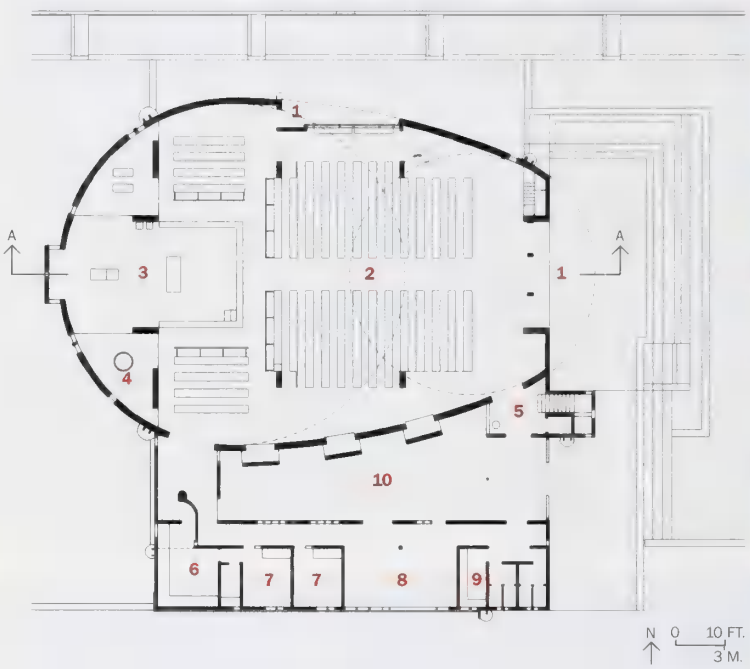
Commentary

The power of Santa Maria de las Brisas resides in its seamless integration of ancient and modern, transient and permanent, physical and spiritual. Without being overbearing, it brings all the senses into play to create a private and deeply internalized sense of space and time.

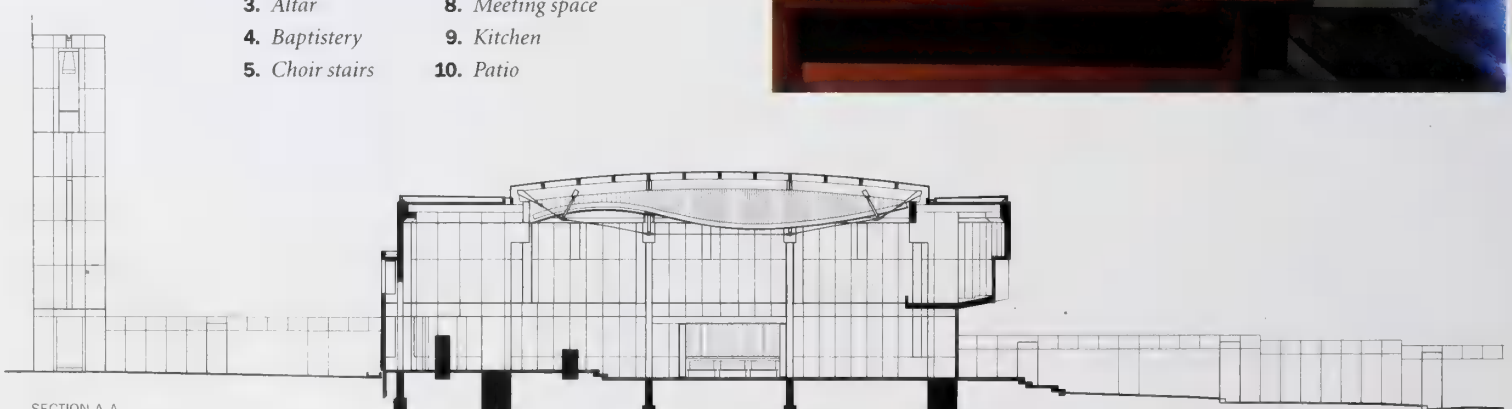
"The whole church is a dialogue," says Domeyko. "Buildings are too simple these days, with everything reduced to a single impression. In this church, nothing is revealed easily. You have to sit and wait for it to speak." ■







1. *Entrance*
2. *Assembly*
3. *Altar*
4. *Baptistery*
5. *Choir stairs*
6. *Sacristy*
7. *Offices*
8. *Meeting space*
9. *Kitchen*
10. *Patio*



SECTION A-A

PHOTOGRAPHY: © JUAN PURCELL



The interior is spare and dark, with only indirect light on the first level and narrow slots of light above, as though the entire sanctuary were a celestial observatory.

White Temple
Kyoto, Japan

4 **TAKASHI YAMAGUCHI AND ASSOCIATES USES CONTRAST TO DEFINE THIS TEMPLE OF SUBTLE VISION YET MODEST DIMENSIONS.**

By Naomi R. Pollock, AIA

Project: *White Temple, Kyoto, Japan*
Architect: *Takashi Yamaguchi and Associates*
Client: *Zuisen-ji Temple*
Engineer: *Taiki Maehara, SD Room (structural); Higuchi Denki Co., Ltd (electrical)*
General contractor: *Kyoritsu Komuten*

Size: *800 square feet*
Completion date: *September 2000*

Sources
Masonry: *Yoshimura Stone Company*
Painter: *Sakai Toso*
Furniture: *SHUEI*
Glazing: *Asahi Glass Company*
Lighting: *Yamagiwa Corp. (downlights); NIPPO Electric Co. (concealed lighting)*

www
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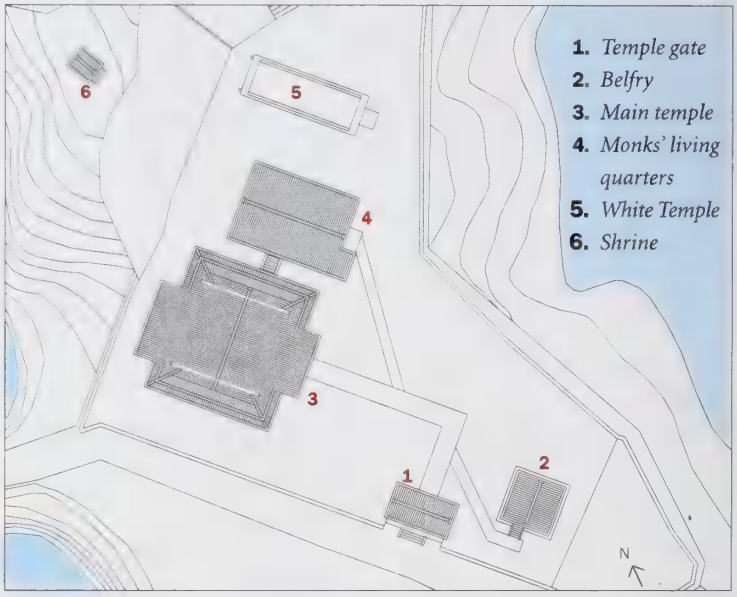
Program

White Temple, the recent addition to Zuisen-ji, a Buddhist temple compound on the outskirts of Kyoto, hardly blends in with the scenery. The rectangular, concrete box amid a sea of black gravel contrasts dramatically with the existing main hall, monks' quarters, and belfry—all timber post-and-beam structures capped by swooping tile roofs. Not to mention the mountains in the distance and Lake Tsutenko nearby. But that was exactly architect Takashi Yamaguchi's goal. Instead of trying to blend in by disguising his building's age or downplaying its contemporary materials, Yamaguchi uses contrast to define a place for worship yet also relate the building to its historical and environmental contexts. The white building extends an existing chain of contrasts, tying gray clouds to blue skies and blue skies to green hills. Though modern looking, White Temple has the hallmarks of its historic antecedents: a form that underscores the setting's natural beauty, a sequence of spaces tailored to a particular ritual, and a sanctuary that invites contemplation.

Solutions/Intentions

An austere, one-room chapel used exclusively for memorial services, the 32,000-square-foot White

Naomi R. Pollock is an architect living in Japan, where she writes about design.



Temple is divided into two halves: one for mourners and one for mortuary tablets inscribed with the names of the deceased. A smooth marble slab floating above the ground and jutting out from the building draws visitors in. It leads first to the seating area for family members, designated by straw tatami mats set into the floor, followed by another marble-floored area for monks conducting the service.

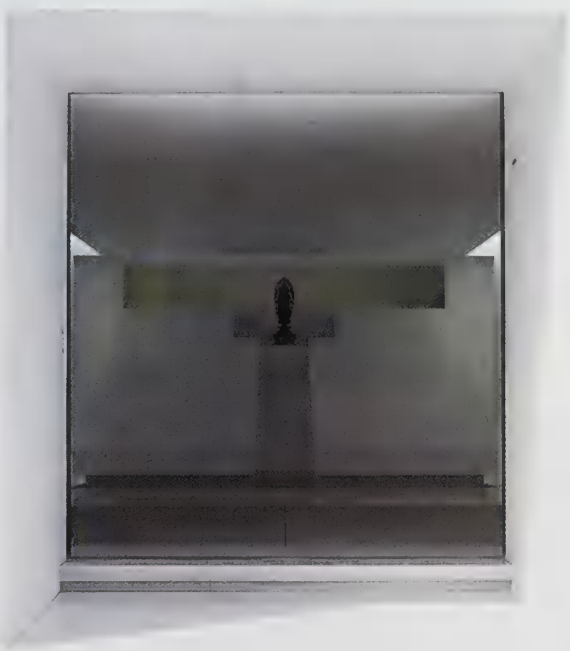
The second half of the room is dominated by a massive stepped platform where the memorial tablets are placed during the ritual. Intended to draw the gaze upward, the stepped platform hovers slightly above the floor and culminates in a modest altar where a Buddha figure stands, illuminated from behind in the traditional manner of *gokou*, the painted, golden halo accompanying many Buddha statues. But instead of highlighting the figure with an artificial golden halo, Yamaguchi lit this one more abstractly with soft, natural light coming from the frosted-glass window comprising the entire rear elevation. The vast plane of glass filters the sun's brightness like a giant shoji screen, but replaces it with an otherworldly glow at the back of the sanctuary.

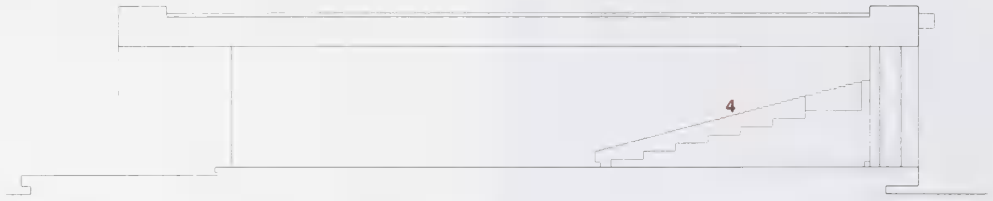
Though largely eclipsed by the stepped platform, the rear window echoes the generous front entrance. A pair of narrow frosted-glass skylights running down either side of the building spans the distance between these two openings. Small fixtures tucked

PHOTOGRAPHY: © TAKASHI YAMAGUCHI AND ASSOCIATES



The rectangular concrete box amid a sea of black gravel contrasts dramatically with the existing timber post-and-beam structures capped by swooping tile roofs.







1. *Entrance*
2. Gaijin *(tatami mats): a space for relatives of the deceased*
3. Naijin: *a space for monks who conduct the service*
4. *The altar where mortuary tablets go*
5. *A tier where the Buddha stands*

The building's dominant axis and strong sequence of spaces symbolize the progression from this world to the next. Encased in walls almost a foot thick and filled with muted light, the womb-like interior is still and suspended from the world outside (below).



PHOTOGRAPHY: © TAKASHI YAMAGUCHI AND ASSOCIATES



beneath the base of the stepped platform supply additional light for evening services. The building's dominant axis and strong sequence of spaces symbolize the progression from this world to the next. But these linear qualities are balanced by the womblike interior's stillness and suspension of outside concerns that come from encasing it with walls almost a foot thick and filling it with muted light. Yamaguchi's intention was to recreate the atmosphere of a Zen meditation garden within the sanctuary. Minimal compositions of sand and stone, these gardens were designed to focus the viewer's attention inward by paring away everything unnecessary, says Yamaguchi.

Comments

A native of Kyoto, Yamaguchi has tremendous reverence for Japan's spiritual spaces and has devoted much of his career to understanding them. While his contemporaries in Tokyo were in hot pursuit of the latest trends, Yamaguchi was unraveling the mysteries of ancient temples and shrines, first as a student at Kyoto University and then during a 10-year stint working for Tadao Ando. Yamaguchi made his own debut with Glass Temple, an addition to Reigenko-ji, an imperial temple compound in Kyoto dating from 1638.

Determining which aspects of tradition are expendable and which ones can be transcribed using today's materials and methods is tricky business. While many architects have tried their hand at it, few are able to pull it off. Yamaguchi succeeds because he uses technology to preserve and promote the essence of tradition. Not the other way around. ■

Small fixtures tucked beneath the base of the stepped platform supply additional light for evening services (below).





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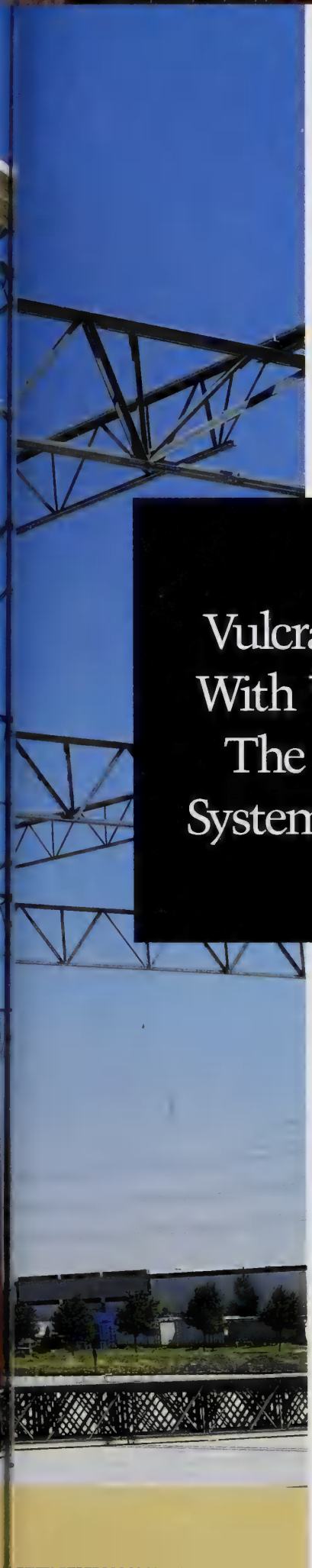
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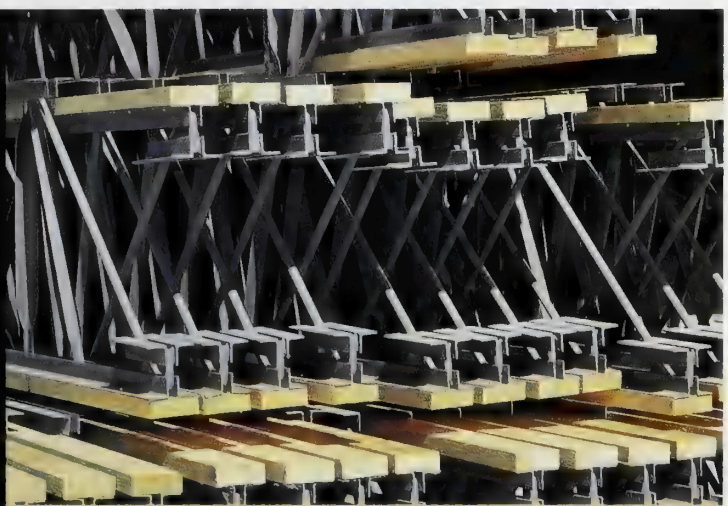
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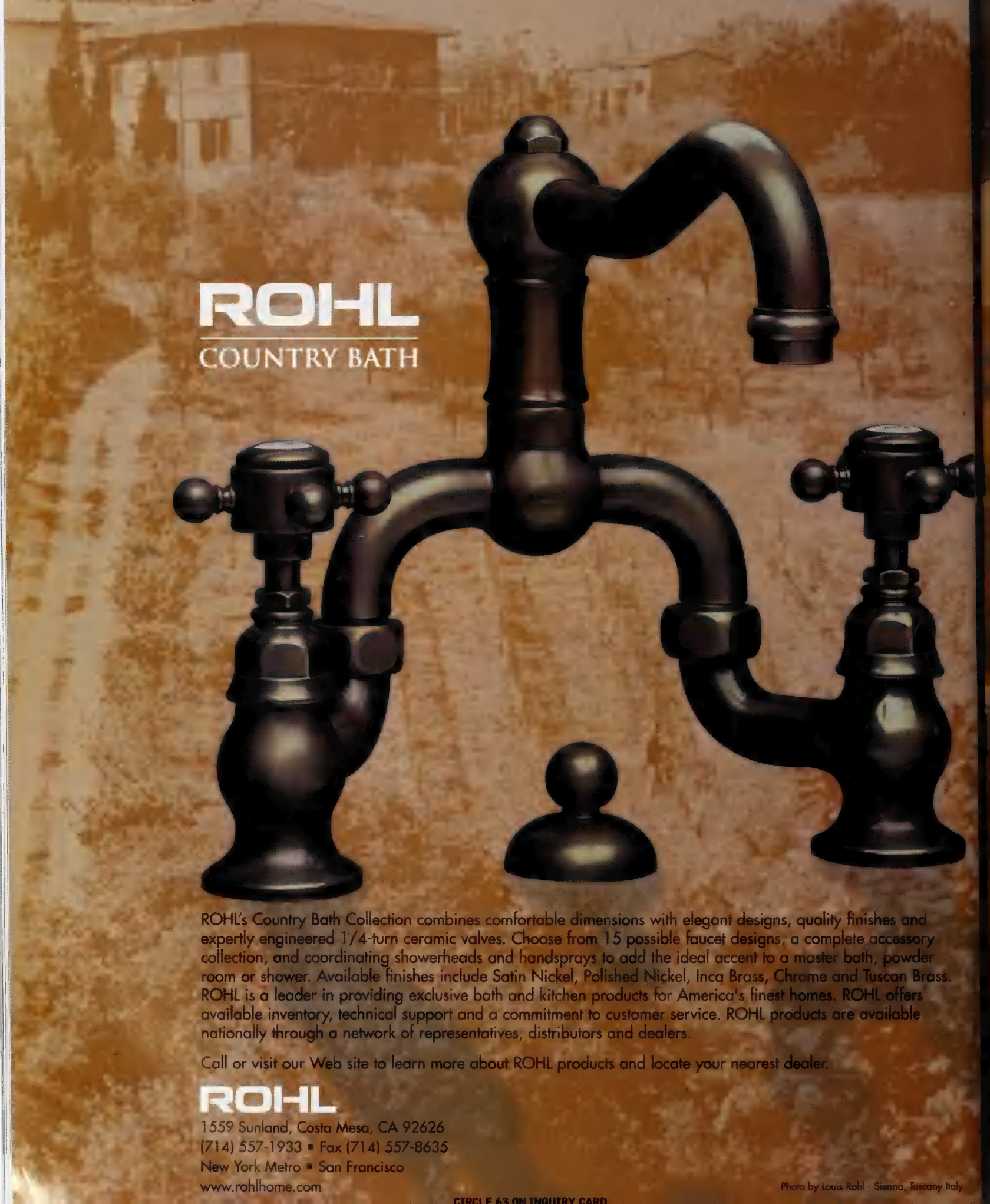
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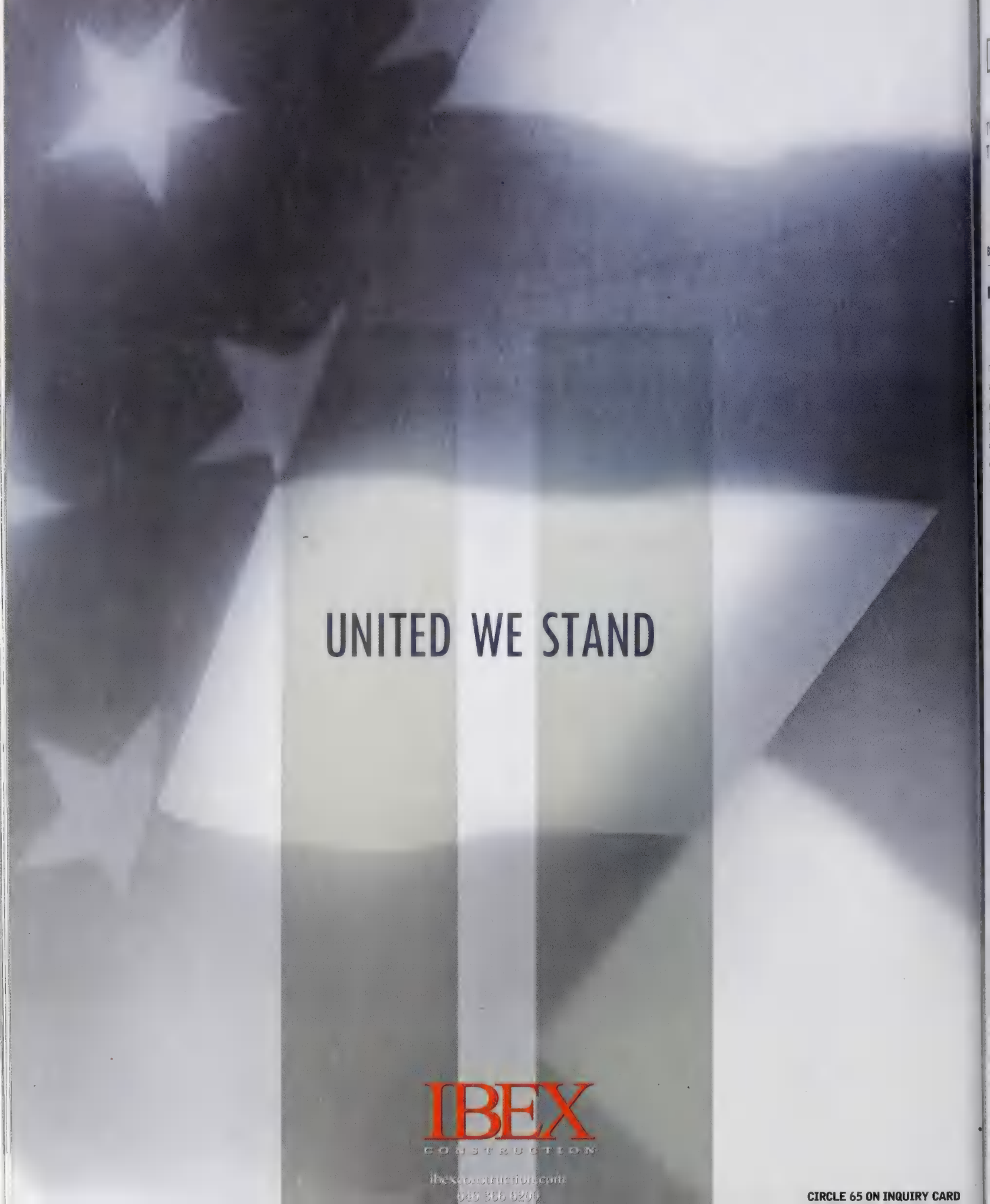
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Dynamic Concrete in the 21st Century

THREE NEW PROJECTS BY RAFAEL MONEO, STEVEN HOLL, AND RICHARD MEIER ILLUSTRATE THE ONGOING VITALITY OF THE WORLD'S OLDEST BUILDING MATERIAL.

By Sara Hart



The concrete walls of the Cathedral of Our Lady of the Angels range from one to five feet thick.

The primary ingredients for concrete—air, water, cement, aggregate, and sand—have been around since the earth cooled. The ancient Romans made pozzolan cement from burned lime and volcanic ash. The ash came from Pozzuoli, Italy, near Mt. Vesuvius, hence the name. (Today *pozzolan* refers to any inorganic compound, especially fly ash, used as either an admixture to or replacement of portland cement.) Of all their engineering accomplishments using this material—baths, aqueducts, roads, and the Colosseum—the Pantheon (A.D. 118–128) in Rome has to be the most astonishing. Unreinforced, in our sense of the term, yet still standing after 1,800 years, the structure has been much studied, but its endurance remains a marvel to engineers, architects, and lay people.

Concrete, as the most ubiquitous building material in the world, may be considered blandly sturdy in most applications, but in talented hands it can be strikingly beautiful, as in the case of the three projects featured here—two churches and a university dormitory. All currently under construction, they promise to usher in a new era of structural and architectural integration. Yet, all three are different in concept and execution.

Built to last

"One of the biggest issues in concrete now is durability," says Nicholas Roberts, project architect for Leo A Daly, executive architect for the Cathedral of Our Lady of the Angels in Los Angeles. (1996 Pritzker Prize winner Rafael Moneo of Madrid, Spain, is the design architect.) If durability is a problem in general for the construction industry, the Archdiocese of Los Angeles made it the overriding issue by mandating that the new cathedral stand its ground like a medieval cathedral for 300 years.

"Of course, the Romans used a form of concrete," explains Roberts, "but the reinforced kind we use now has only been around about 140 years." It's hard to anticipate the stamina of a material over the course of three centuries, in a region where there are no precedents to study or data to examine. Roberts and his colleagues located a couple of churches in the Los Angeles area that had been built in the 1920s. The concrete in these structures suffered from the number one enemy of most buildings: moisture penetration. Over time, concrete breathes, bringing in air and, in this case, salty and polluted water. The moisture works through the concrete and rusts the reinforcing steel bars. The rusted rebar expands, pushing the concrete away, resulting in cracking and spalling. Stainless-steel rebar is a good solution to the rusting problem but prohibitively expensive to use throughout most projects. Although it was used in a few critical areas in the cathedral, the architect and engineer specified that the standard rebar be placed no closer to the exterior than three inches rather than two inches, which is typical.

The architect wanted a smooth, refined finish to the concrete exteriors and designed the walls with a "shingled" surface in some areas.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 258 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Describe technological improvements to concrete.*
2. *Identify types of cements and why they are used.*
3. *Explain the most common problem of concrete structures.*

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Cathedral of Our Lady of the Angels, Los Angeles, California
Architect: *José Rafael Moneo Architects, Madrid, Spain*
Associate architect: *Leo A Daly Architects, Los Angeles, Calif.*
Date of completion: *September 2002.*
Consultants: *Morley Construction (contractor); Nabih Yousef (structural engineer); Catalina Pacific Concrete (supplier); Davis Color (custom color); Paulo Monteiro (computer simulation); Reginald Hough (concrete)*





Morley Construction built many mock-up walls (above and left) off-site to test color and texture and to experiment with "shingled" surfaces. Chilled water, refrigeration, and mist cooling kept the materials cool on-site to ensure a 75 degree maximum temperature for the concrete at the time of placement. In warm weather, pours began at 5:00 A.M.

The challenge was to find a concrete recipe and curing method that would reduce shrinkage and thermal cracking. Furthermore, the structural engineer had been directed to deliver a building that would sustain quality of service after an earthquake. Besides the concrete investigation, structural engineer Nabih Youssef designed an isolated-base system of rubber isolator pads and sliders, which support the building and the adjacent campanile and isolate them from their foundations during lateral accelerations generated by earthquakes.

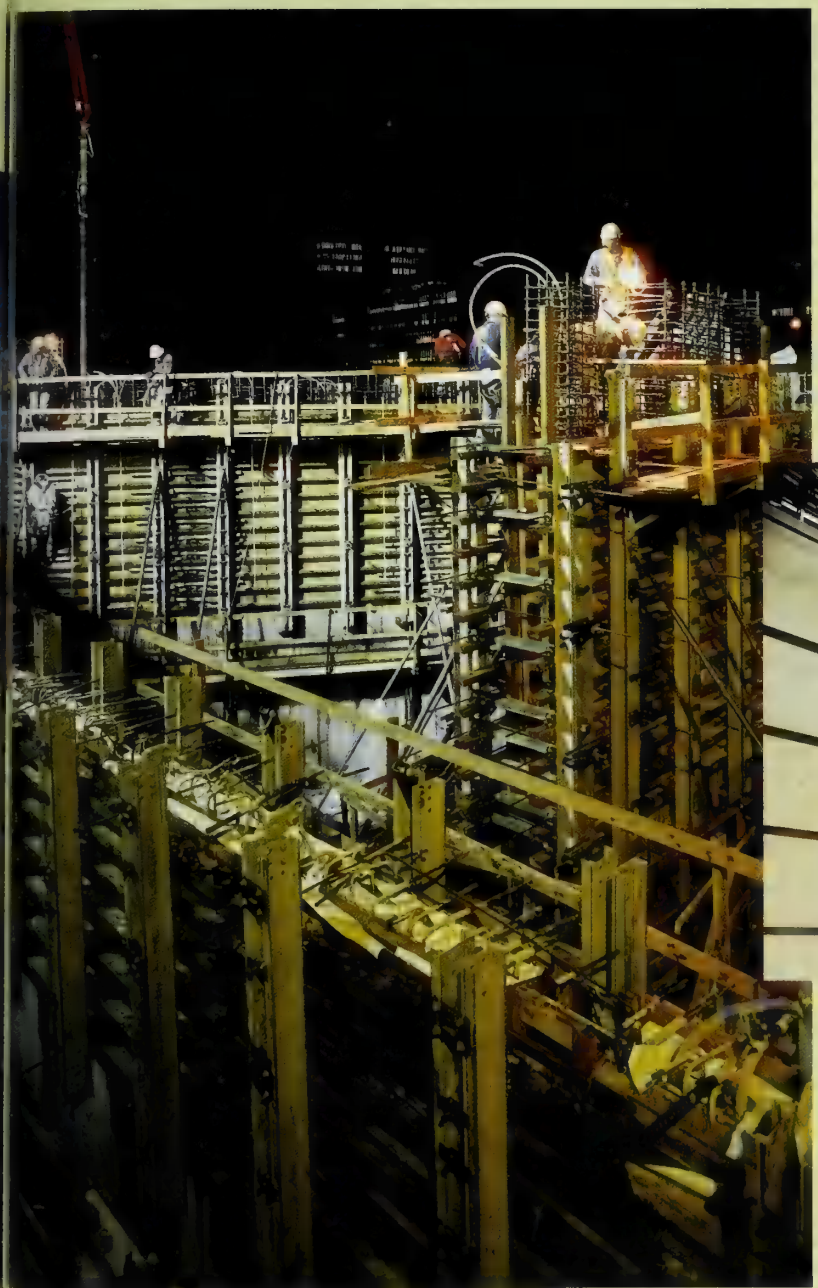
Roberts worked with Terry Dooley, senior vice president of Santa Monica–based Morley Builders, the general contractor for the cathedral, and David Selna, Morley's project manager for concrete, among other consultants, to devise a multifold strategy to manage all structural and aesthetic concerns.

One critical decision involved the cement. The concrete mix for the walls includes Lehigh Aalborg cement, a type of Danish white cement, because it is uniform in color and generates a lower heat of hydration than other white cements; and fly ash, the silicious by-product of coal burning. Heat of hydration is the heat generated when cement and water interact. A lower heat was needed because of the unusual mass of the walls, which range from one to five feet thick. Such mass traps heat, potentially raising the internal temperature levels above the 160 degree limit determined for curing, and increases the risk of thermal cracking.

THE CHALLENGE WAS TO FIND A CONCRETE RECIPE AND CURING METHOD THAT WOULD REDUCE SHRINKAGE AND CRACKING.

The pozzolan fly ash replaced part of the cement content of the mix. "It also improved workability, ease of placement within the forms and around the reinforcing steel," according to Dooley. "This tends to improve surface quality, where the concrete meets the form

PHOTOGRAPHY: © GARY KRUEGER; RENDERING: SCOTT





Concrete forms (below and left) were made of double-thick plywood to improve the flatness of the surfaces. Extra strongbacks and supports increased rigidity and accommodated a four-foot spacing for wall ties. To reduce thermal shock, forms remained in place for at least 2 ½ days.

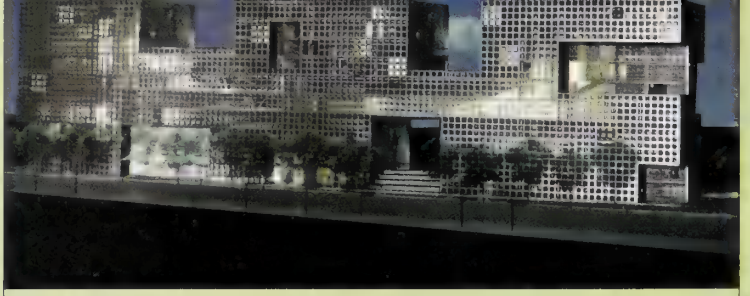
surface." Not only is pozzolan economical and readily available in southern California, but the supplier, Boral Materials, guaranteed a narrow color range of light gray to off-white, as the architect specified.

The concrete choice responded to the changing dynamics of wall design, since the walls vary in thickness. Some diversity is due to different loads at different locations, requiring them to be thicker at the bottom. But this project is different. Moneo desired a wide variation in angles, with nonparallel surfaces in corridors and openings. Dooley, who was intimately involved with the process and the results, insists that "the play of light on these highly varied surfaces will be one of the great features of the cathedral." Such an effect required over 800 different corner angles for the forms that were built to hold the concrete.

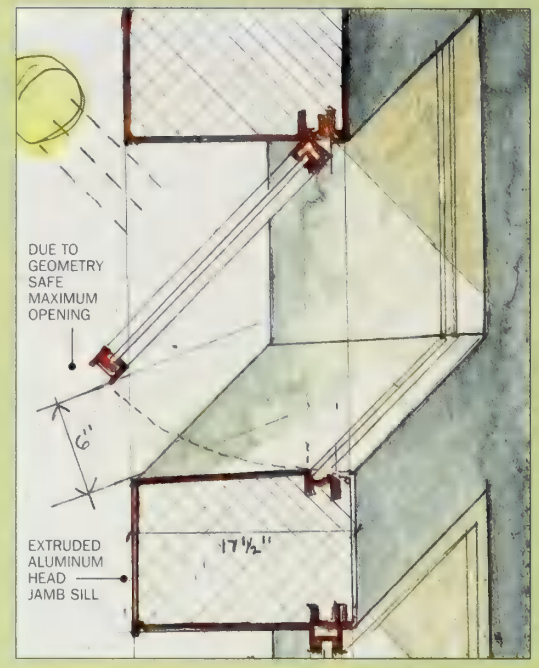
The exterior walls have an unusual shingle effect, which was achieved by building the pattern directly into the formwork. The resulting four-foot-tall "shingles," each offset three inches from the adjacent one, have a smooth finish, which belies their material. "In reality, it is a solid wall of reinforced concrete. Because of the quality of the finish, many observers have asked what veneer has been suspended from the walls or have asked for the source of our precast cladding," explains Dooley. "We have neither of these. It's a cast-in-place architectural concrete surface."

Full of holes

Seismic concerns lessen on the East Coast, but there are still circumstances that call for invention. The site for a new undergraduate dormitory at the Massachusetts Institute of Technology (MIT) presented a tricky urban dilemma for New York architect Steven Holl. The site is a long and narrow parcel on the banks of the Charles River a few hundred yards from Alvar Aalto's 1948 Baker Dormitory. The site's prominence, however, was compromised by its awkward configuration. Holl had to figure out a way to build a 350-room dorm on a 90-by-2,100-foot lot without creating a massive wall that would obstruct the



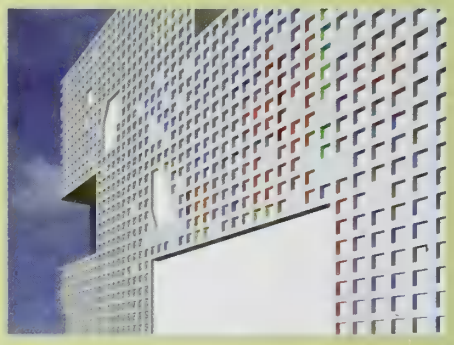
Simmons Residence Hall at MIT, Cambridge, Mass.
Architect: *Steven Holl Architects, New York*
Associate architect: *Perry Dean Rogers, Boston, Mass.*
Date of completion: *Fall 2002*
Consultants: *Guy Nordenson (structural); Simpson Gumpertz & Heger (structural); Beton Bolduc (concrete supplier)*





Each single room has nine operable windows (right), two by two feet. Cast-in-place Perfcon panels create a gridded facade, which allows for long spans without deep beams. A stress diagram of the facade (bottom right) shows the concrete stresses in red and blue.





adjacent residential neighborhood's views of the river. Holl looked for a "porous building morphology" in which the geometry included five large-scale openings.

The solution for both structure and massing came from New York structural engineer Guy Nordenson, who developed a precast concrete system he calls Perfcon (short for perforated concrete). "It allows for a variable structure, which acts as a perforated bearing wall able to bridge the large openings, cuts, and cantilevers around the entire building," explains Nordenson. "The high-strength concrete is quite dense and provides a clean and rugged surface on the inside of the building. It is covered on the outside by insulation and aluminum panels that add as well to the thermal mass of the building."

"HIGH-STRENGTH CONCRETE IS DENSE AND PROVIDES A CLEAN AND RUGGED SURFACE ON THE INSIDE OF THE BUILDING."

All the vertical and horizontal members are the same—either 10 by 12 inches (floors 1–5) or 10 by 10 inches (floors 5–10)—and are made of high-strength concrete with four reinforcing bars each. Iterative analysis showed that stresses in the members exceeded the capacity of the concrete where they cantilever around the building's corners or large openings. Nordenson solved this problem by increasing the diameters of the reinforcing bars as needed from numbers 5 (⅝ inch) through 9 (1 inch), and then repeating the analysis until no members were overstressed. This solution is cleverly illustrated on the facade. The heads and jambs of the windows are color-coded according to the stress they bear—red means high stress; blue, low stress. "The facade is a big stress diagram," jokes Nordenson. It is MIT, after all.

Concrete sails in Rome

A few miles from the Pantheon, an American architect is stretching the

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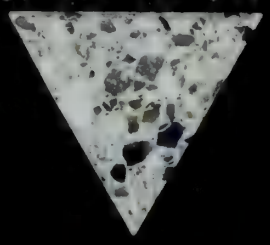
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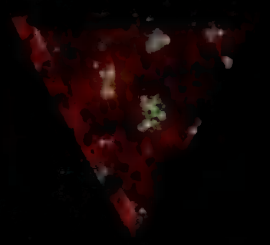
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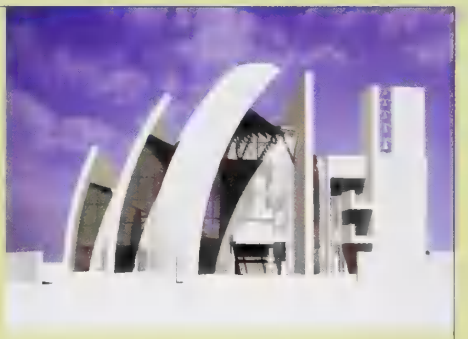


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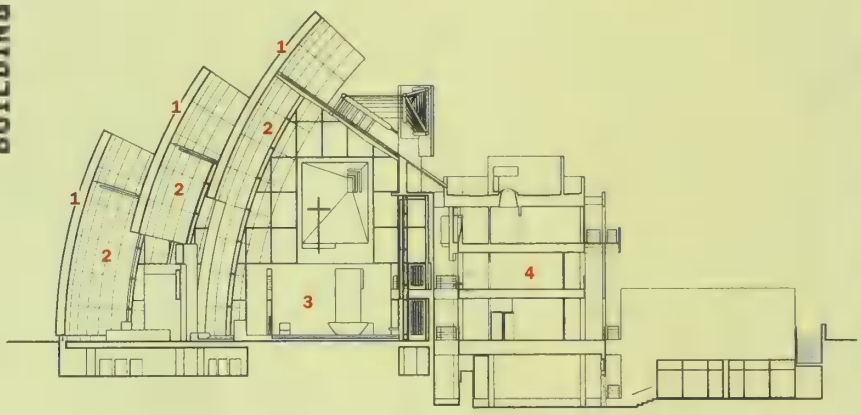
CIRCLE 66 ON INQUIRY CARD

Dio Padre Misericordioso (Jubilee Church), Rome, Italy
Architect: *Richard Meier and Partners, New York*
Date of completion: *Early 2002*
Consultants: *Arup (structural); Guy Nordenson (structural); Italcementi (concrete and gantry crane)*



Three precast concrete blocks, each weighing 10 tons, are hoisted into place by a rolling gantry crane (below). The final shells will range in height from 57 to 90 feet.





1. *Concrete shells*
2. *Glass panels*
3. *Sanctuary*
4. *Community center*

architectural limits of concrete. In his first ecclesiastical commission, New York architect Richard Meier has created a bold and modern precedent for civic and liturgical architecture with his design for the Jubilee Church in Rome. Commissioned by the Archdiocese of Rome, the church and adjacent community center are intended to revitalize an isolated residential district seven miles from the center of the city. Under construction since March 1, 1998, the 9,000-square-foot church's massing is defined by three concrete shells, ranging in height from 57 to 90 feet. The shells delimit three distinct spaces—the main sanctuary, the weekday chapel, and the baptistery, each with its own entrance. Separated by vertical expanses of glass and continuous skylights, the shells appear to be freestanding, and actually could be, except that they're tied down to resist seismic and wind loads.

SEPARATED BY VERTICAL EXPANSES OF GLASS AND CONTINUOUS SKYLIGHTS, THE SHELLS APPEAR TO BE FREESTANDING.

The shells are made of 346 white, reinforced, precast concrete blocks. They are spherical, curving horizontally and vertically. "The geometry is defined to maximize the repeatability of the formwork," explains John Eisler, project manager. "Think of a globe turned 90 degrees. The parallels run vertically [in this scenario], and the meridians run horizontally. As a result, a single stainless-steel form, adjustable on the ends only, can be used for every block."

Italcementi, one of the largest producers and distributors of cement in Europe and the technical sponsor of the project, developed the concrete for the project, including a new, brilliantly white cement, Bianco TX Millennium. Photocatalytic particles in the mixture oxidize organic and inorganic atmospheric pollutants, so that the brightness and color will not degrade over time. The aggregate is Carrara marble, which is a little softer than granite but also contributes to the mirror finish that the stainless-steel formwork produces.

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Gennaro Guala of Italcementi developed a curving gantry crane to lift the 10-ton precast concrete blocks into place, instead of the traditional scaffolding, which was considered too dangerous. A horizontal platform runs along the track, carrying each block to its specified section of the wall. Hydraulic pistons raise the platform, which then tilts the block into its location on a tier. All the rows are posttensioned vertically and horizontally with steel rods and cables so that the entire shell is in continuous compression.

Although complicated to design and build, once the shells are completed they will be efficient and low-maintenance. Facing south, they act as shading devices, allowing for large expanses of glass on the east and west. The thermal mass of the concrete walls will keep heat inside in the winter and outside in the summer, reducing the energy loads on the building systems.

Smart and environmentally friendly

Although it may appear that this workhorse of a material is as dependable as it's going to get save for incremental improvements, research and development are ongoing. The Portland Cement Association (PCA) is one of many national organizations that responds to industry concerns. Because sustainability has emerged as a primary issue in construction, the PCA spends about $2 million a year sponsoring research to find ways to recycle the by-products of cement for use as fertilizer or to stabilize contaminated sites. It is currently developing a computer model for an environmental life-cycle assessment of portland cement concrete. All this data will help designers and specifiers determine durability and environmental impact.

The next evolutionary step will be about brains, not brawn. Dr. Deborah Chung, chair of materials research at the State University of New York at Buffalo, has discovered a way to make concrete speak. "'Smart concrete' senses its own situation with regard to deformation, damage, or temperature," reports Chung. "It's not about embedding instruments in the concrete. The concrete itself is actually modified by adding a small amount of short carbon fibers [to an ordinary concrete mix]." When a stress occurs, the contact between the fibers and mixture is altered, causing an increase in electrical resistance. This resistance can then be measured with meters and probes.

The commercial application of smart concrete is a few years away, but Chung has already secured a patent. The benefits are numerous. Carbon fibers make the concrete stronger and able to withstand greater stresses before fracturing. Chung has also done tests that show that highways paved with smart concrete will allow moving vehicles to be weighed and their speed measured. In buildings, minor structural flaws will be detected before they become major ones. Structural vibrations during earthquakes can be measured continuously in real time.

Architecture in the 21st century will be transformed by phenomenal advances in the area of high-performance, engineered materials. Structures will be built out of exotic composites, heretofore seemingly farfetched, made up of combinations of ceramics, polymers, synthetic fibers, fabrics, and shape-memory alloys, to mention only a few. All of these developments will ensure the dominance of concrete, not replace it. After all, concrete is the original composite material. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Dynamic Concrete in the 21st Century" using the learning objectives provided.
- Complete the questions below, then check your answers [page 258].
- Fill out and submit the AIA/CES education reporting form [page 258] or file the form on ARCHITECTURAL RECORD's Web site at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. Why are different types of cement used?

2. What is the most prevalent problem with concrete over time?

3. How can a concrete building be designed to be see-through?

4. How will the concrete in Rome's Jubilee Church stay white?

5. How are fibers being used in concrete?

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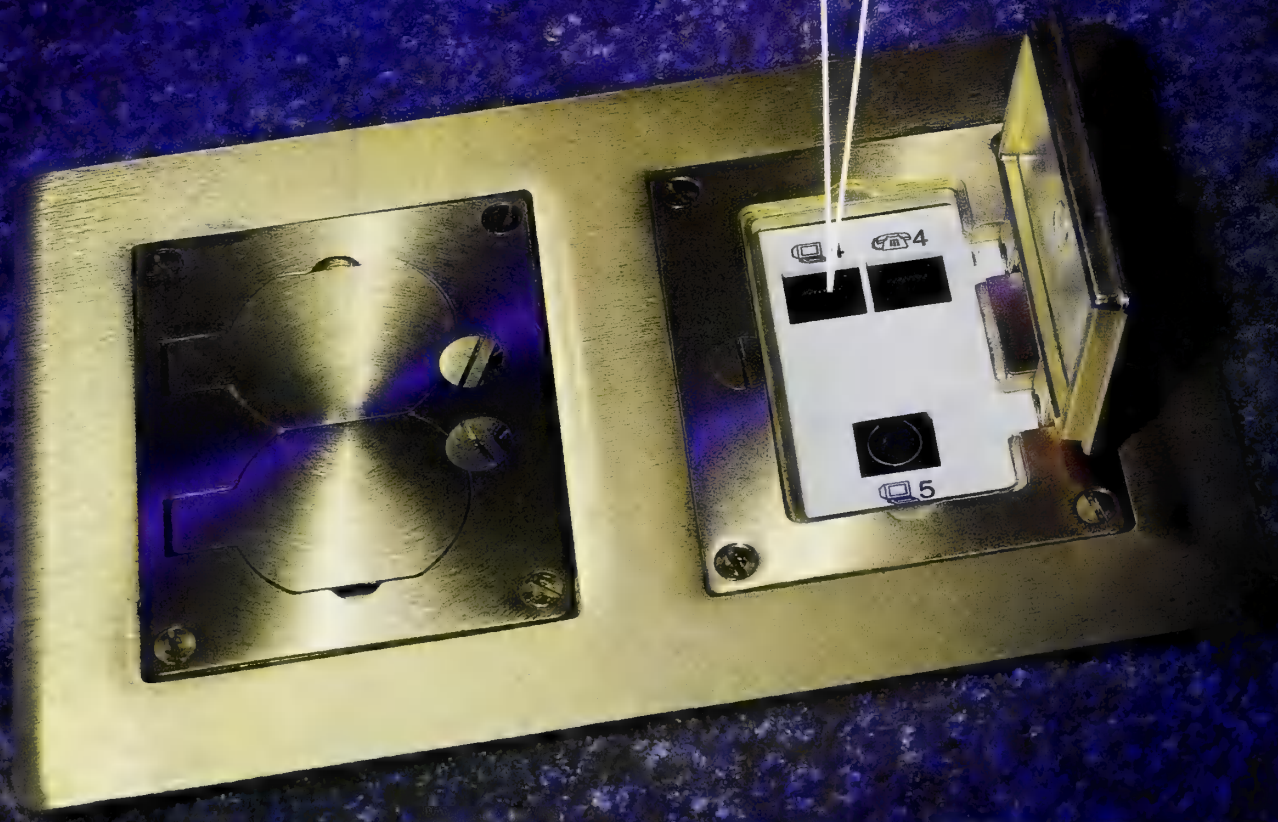
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but I'll tell you, there's nothing I'd rather be doing.
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Digital Architect

Ergonomics in the Digital Office

By Jerry Laiserin, FAIA

At the mention of occupational hazards in the building industry, most people think of ironworkers and steamfitters, miners and machinists. In comparison, designers, drafters, and spec writers seem to have it easy. While architects rarely risk life and limb during the workday, they are still vulnerable to workplace injuries. As computers have proliferated in design offices, architects spend more and more working hours seated in front of a keyboard and monitor. Without proper precautions, prolonged computer work can lead to a slew of nagging occupational disorders, even permanent disability. In a profession that values a "fine hand" and a "good eye," any threat to mobility or vision must be taken seriously.

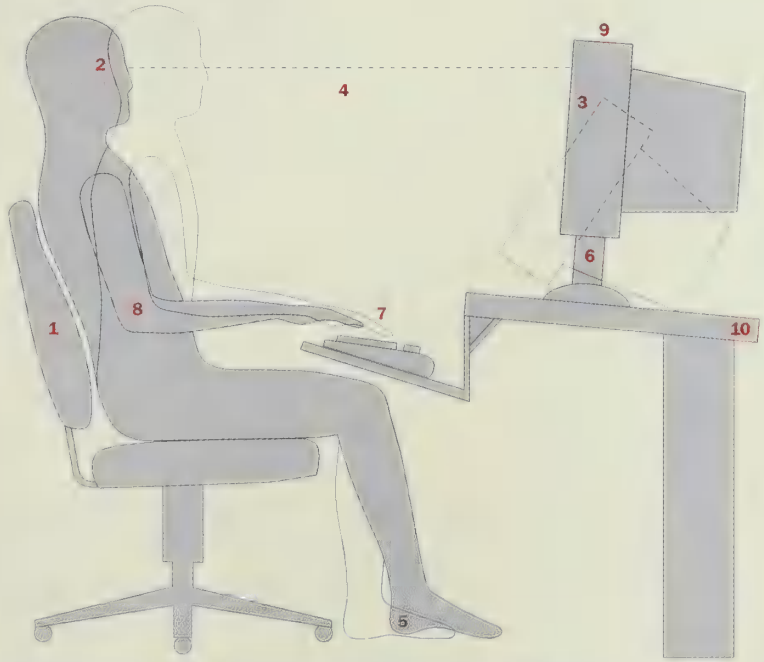
The study of how people are affected by the tools they use is called *ergonomics*. Related terms like *engineering psychology*, *human engineering*, and *human factors* address people's interaction with their equipment and work environment. In office environments, this boils down to human-computer interaction (HCI) as viewed through human factors and ergonomics (HFE).

While recommended practices for ergonomic computer use have been well known for two decades and even enacted into law in some places, the prevalence of computing sparked interest in nationwide standards enforceable by the Occupational Safety and Health Administration (OSHA). Such standards were promulgated in the waning days of the Clinton administration but were withdrawn for further review under President Bush. Whatever form the final regulations take, the guidelines and criteria for HCI/HFE still hold.

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

WWW For more information on technology for architects, including product reviews and vendor lists, visit **www.architecturalrecord.com/digital.**

Ten Tips for Better Computer Posture



1. *Use a chair with good back support.*
2. *Top of monitor level no more than 15 degrees below eye level, neck bent slightly.*
3. *No glare on screen.*
4. *Sit a comfortable distance away.*
5. *Feet flat on floor.*
6. *Use a document holder.*
7. *Wrists flat and straight.*
8. *Arms and elbows close to body.*
9. *Center monitor and keyboard on desk.*
10. *Use an adjustable, stable work surface.*

Best seat in the house

Obtaining a comfortable, safe HCI/HFE setup involves balancing the placement of seating, keyboard, mouse, and video display terminal (VDT), or monitor. The goal is to place equipment and position the body to avoid eyestrain and other possible injuries, including computer vision syndrome, musculo-skeletal disorders, repetitive stress injury, and carpal tunnel syndrome.

The principles of proper posture for computer work are not complex (see diagram above). Computer users should rest their feet flat on the floor, with knees bent at a 90-degree angle and upper body bent 90 degrees relative to thighs. Hands on the keyboard should form a straight horizontal line from wrists to elbows, which in turn should be bent 90 degrees relative to upper arms. From this sitting position, the top of the computer monitor should be at or within 15 degrees below eye level, at a distance approximately twice the width of the screen. For example, a 15-inch cathode ray tube monitor is about 11 inches wide in viewable area, requiring a distance of 22 inches.

Chairs should have several adjustable features to help computer users maintain correct posture. Ideally, a chair will have an adjustable height, pan tilt, depth, back height, back tilt, lumbar support, headrest (height and tilt), armrest (height, spacing, and tilt) and overall swivel and recline. Users should also have an adjustable footrest, if needed, to have feet resting flat.

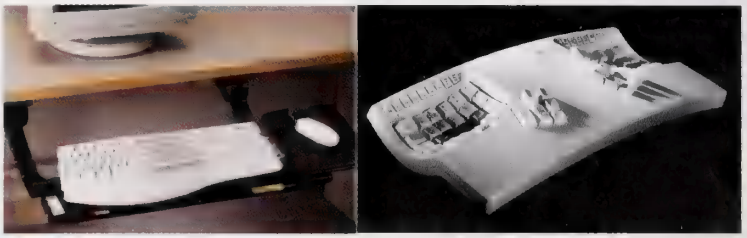
Numerous resources are available to check the adequacy of existing or proposed workstation configurations. The 3M Company, which manufactures a line of ergonomically correct computer

accessories, provides a 19-item checklist on the Web, keyed to self-help tutorials. OSHA offers an online electronic compliance assessment tool, or eCAT, with a 33-item checklist. Open Ergonomics, Ltd., offers a free 78-item online interactive workstation assessment test. They also maintain a comprehensive database of human dimensions: a range of 280 dimensions for male and female adults within eight distinct national populations (China, France, Germany, Holland, Italy, Japan, the U.K., and the U.S.), along with U.K. and U.S. infants up to two years in age and children from two to 17 years old.

Standards for ergonomics are set forth by the American National Standards Institute and Human Factors and Ergonomics Society in their joint Standard 100 for VDTs, and also by the International Organization for Standardization (ISO) Standard 9241, parts 3 ("visual display units") and 5 ("ergonomic requirements for office work with visual display units"). The ISO standards have been incorporated into draft design guidelines developed by the Business and Institutional Furniture Manufacturers Association, which cover furniture intended for computer use in the U.S. and Canada.

It's all in the wrist

Besides proper seated posture, the next most important components of a workstation are the keyboard and mouse platform and the keyboard itself. It's virtually impossible to achieve correct wrist alignment with a keyboard placed directly on a standard desk. The best solution is an articulating keyboard support that is both height- and depth-adjustable and also enables positive or negative tilt of the keyboard (most experts recommend a negative tilt). Some keyboard supports enable proper wrist alignment for people of various heights, working either seated or standing. Many models are available from a variety of office supply houses, furniture manufacturers, and computer accessory catalogs.



Articulating keyboards arms (left) with adjustable keyboard and mouse platforms enable users to achieve the recommended wrist angle. Ergonomic keyboards, such as the Kinesis model (right), further enhance wrist comfort.

Typing at a conventional keyboard requires turning over or pronation of the forearms in order to get fingers flat on the keys. Ergonomically ideal keyboards split the keys into adjustable left- and right-hand groups, rotate the split segments to minimize bending the wrists, and tilt the two halves to elevate the thumb side of each hand, in order to minimize pronation of the forearms. One model, the Microsoft Natural Keyboard, mimics some of these effects, although it's not adjustable. Specialty keyboards from companies like Kinesis cost little more and are fully adjustable. Either the keyboard or the keyboard tray should include a padded wrist rest.

Mouse position is critical for computer-aided design (CAD) users because most CAD software requires constant input from

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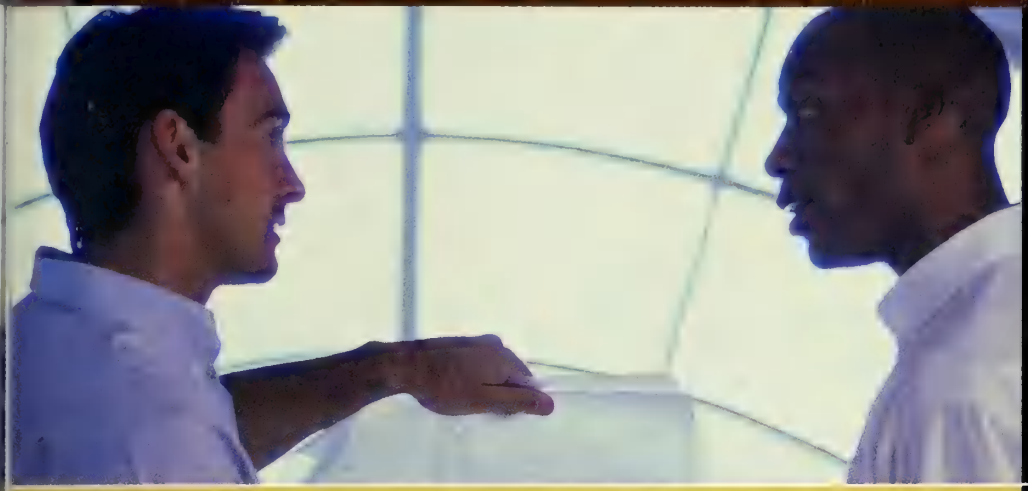
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CIRCLE 118 ON INQUIRY CARD

both devices. Conventional desktop setups place the mouse on a different vertical plane than the keyboard, and far off to one side. This imposes excessive and unnatural arm and wrist movements on the computer operator. Narrower keyboards, keyboard arms with integrated mouse trays, or pointing devices integrated directly into the keyboard all offer improvements, as do specialty devices like the 3M Renaissance mouse, with its joysticklike trigger handle.

Portable computers are especially troublesome from an ergonomic standpoint. Placed on a desk, the typical laptop or notebook PC combines a keyboard that's too high with a screen that's too low for long-term comfort. The best setup for extended office use of a laptop is to connect it to a docking station, a fully adjustable external monitor, and an external keyboard and mouse on the same sort of adjustable platform as a fixed desktop machine. If this isn't possible, a lecternlike stand that elevates the screen and tilts the keyboard for a more natural wrist alignment is a second option.

The eyes have it

Accessory monitor arms or supports, typically available from the same sources as keyboard trays, extend the limited tilt-and-swivel capabilities built into most monitors. Monitor height and screen distance affect neck and shoulder comfort during prolonged computer work sessions, and adjustable screen tilt is important to minimize reflected glare, the principal cause of computer-related eyestrain. Flat-screen displays, such as liquid crystal displays (LCDs), are less prone to veiling reflections (glare that obscures the on-screen work). LCDs also are smaller and lighter than standard monitors, thereby allowing more flexibility in placement.

Proper positioning of a monitor relative to room light sources helps minimize glare. Most guidelines recommend placement at right angles to windows and also perpendicular to linear light sources, such as fluorescent tubes (in many offices, such positions are mutually exclusive). Glare also can be controlled by using a polarizing filter attached to either the screen or the light source. 3M makes polarized filter sleeves that fit over most standard fluorescent tubes.

Architects who wear corrective lenses may find it difficult to achieve the ideal distance from their monitors. Many optometrists recommend transitional lenses or a separate prescription for lenses needed to accomplish computer work, combined with glare-reducing tints and coatings to further minimize eyestrain.

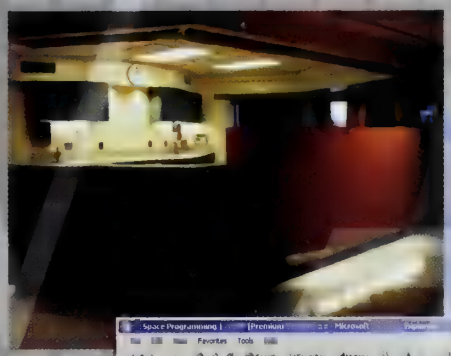
Getting better all the time

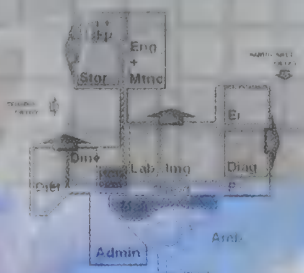
In the future, new computing technology and hardware may minimize or erase the ergonomic stresses placed on users today. Computer mice will be replaced by penlike styluses. Voice recognition capabilities, especially for general office applications, will reduce or eliminate keyboard input. Flexible liquid polymer displays will be as easily held and read as paper manuals and drawings, allowing users to enter work as if it were being done in hard copy, but capturing the work electronically.

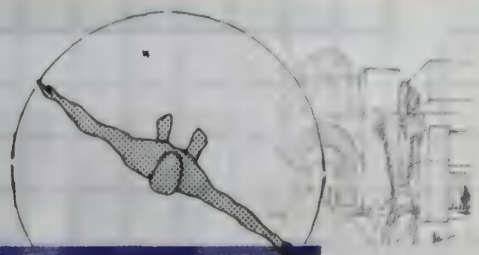
Although a full ergonomic furniture and equipment setup may cost more than $1,000, it's a small fraction of the average cost to settle a repetitive-stress-injury claim, according to figures compiled by the American Bar Association.

While computer technology has introduced new possibilities of workplace injuries, the risks are manageable through careful planning and moderate investment. ■

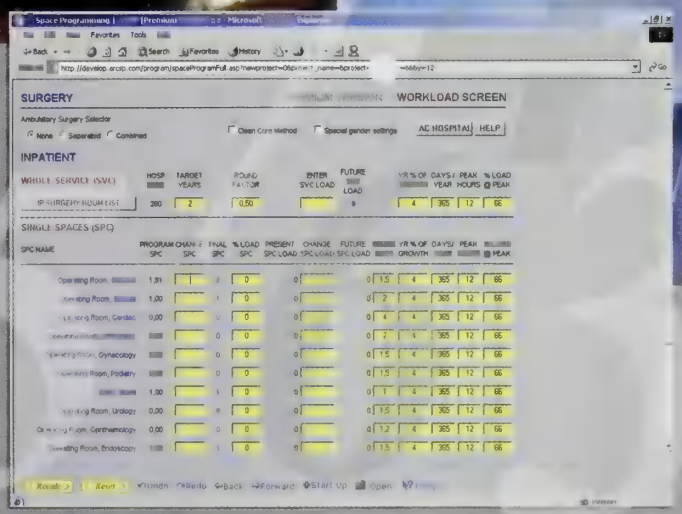










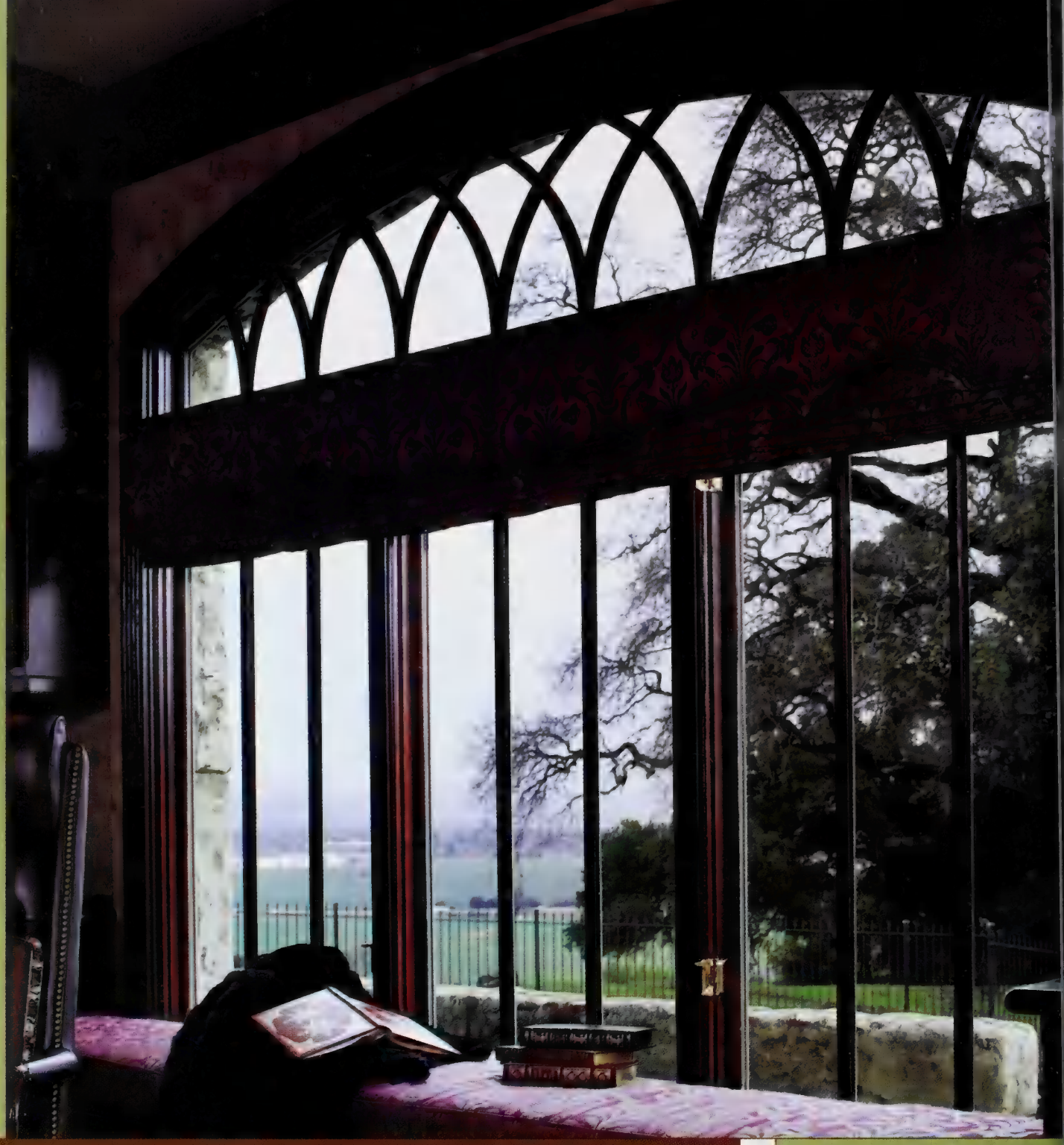


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LEARNING OBJECTIVES

- Compare the new AAMA standard to the older AAMA standards.
- Explain what makes exterior aluminum coating more durable.
- Describe impact resistant glass and where it is used.
- Identify changes in window glazing.

Exterior cladding of wood window frames and sash, of either vinyl or aluminum, long ago became the accepted application for nearly all residential uses. Today, more than 80 percent of all windows produced by mainstream manufacturers have a clad exterior. Today's cladding not only provides nearly infinite design options, but greatly increases the ease of maintaining exterior window surfaces.

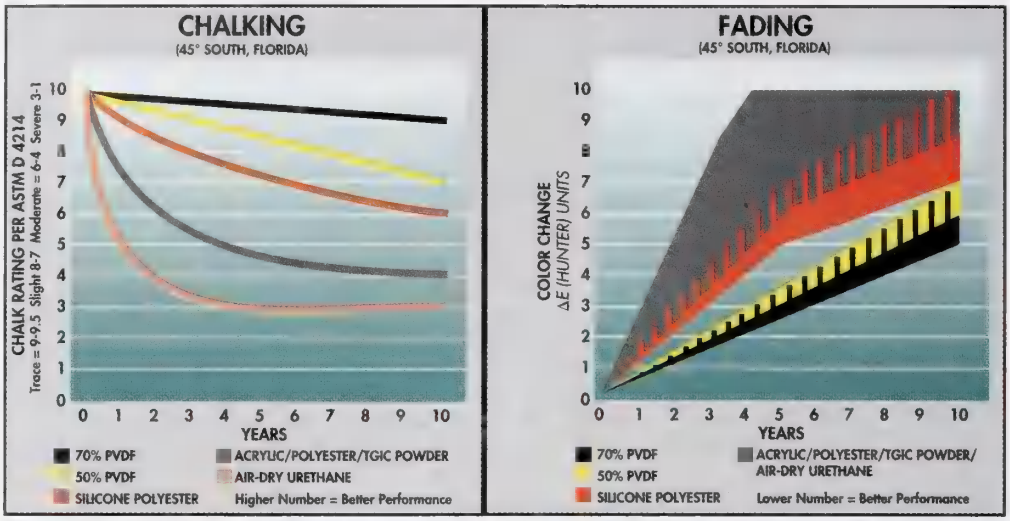
For years, the architectural community has recognized American Architectural Manufacturer's Association (AAMA) 2603 and AAMA 2604 as the standards for performance of inorganic coatings on architectural aluminum extrusions and panels. But recent technology advances have moved the AAMA to reassess the old standards, and in many cases raise the standards significantly.

The new AAMA 2605 standard is a 10-year performing specification that more than doubles the old requirements in a number of areas, especially for weathering performance, abrasion resistance and resistance to salt spray and humidity.

The older 2603 standard allows, after 1,500 hours of accelerated testing, both slight chalking and fading. AAMA 2604 sets chalking and color performance standards for performance after five years and looks at lab results after 3,000 hours of accelerated testing. New coatings technologies, from companies like Dow Corning and 3M, with vastly improved performance characteristics have pushed the AAMA to set standards for 10 year performance and to demand vastly heightened performance after 4,000-hours of accelerated tests, and 10 years of field exposure

Chalking occurs when finish surfaces degrade and begin to break down. Ultraviolet light is, typically, highly unfriendly to vinyls over time. "Chalk" will rub off on your fingers. Colors lose their brightness. "Even with synthetic, baked-on paints, if you, say, have a house in Jackson, Wyo., with bright red trim, in as little as two years that bright red coating will fade to pink, and eventually to white," says a U.S. window manufacturer. "There are products on the market today that will prevent that."

One of them is Kynar, one of several aluminum coatings using polyvinylidene fluoride (fluoropolymer, PVDF) resins. Polyvinylidene Fluoride is a high molecular weight thermoplastic polymer with excellent chemical inertness. It is highly resistant to oxidizing agents and halogens and is almost completely resistant to aliphatics, aromatics, alcohols and acids. It is unaffected by most chemicals and solvents, and will not burn in air. It is self-extinguishing.



These graphs are based on exposure and laboratory testing reports that are considered reliable. The data referred to is not offered as a guarantee or warranty, express or implied. Source: The Valspar Corporation, 1999.

Manufacturers using exterior window coatings of 70 percent Kynar 500® now offer 10-year warranties that finishes will remain clear and bright. With no fading, no chalkiness, no pitting, even if the windows are exposed to harsh sunlight, or constant fog. "Fifty percent Kynar (the percentage measure of the resin content) results in a good finish," say technical consultants for one U.S. manufacturer. "A 70 percent resin content results in a longer-lasting finish."

Kynar exterior finishes not only are extremely durable, but incrediby versatile. Relatively new computer-directed color-matching means designers now can choose windows clad in any color imaginable. "We can match the color of your client's Jaguar," says one manufacturer; "or the color of your wife's eyes," says another.

Turn-around time on custom-color clad windows—in any design, in any geometry—is guaranteed to be less than two weeks outside the normal ordering timeframe; a critical factor in a marketplace where distributors are paring back standing inventory.

For custom-color, manufacturers typically ask architects or builders to provide a color chip, which is computer read. The results are "pretty much right on the money in terms of a color-match," says a manufacturer.

Some manufacturers now offer extruded aluminum cladding on the exterior of both sash and frame, an option that ensures low maintenance and long-term performance. Extruded aluminum-clad frames are not subject to lifting joints and bent edges typical of roll-form clad products.

New generation extruded aluminum clad frames now come with what manufacturers call a "rigid integral nailing fin," designed for ease of installation. With the nailing fin, the window unit does not move in and out of the wall during installation as is common with vinyl fins.

Manufacturers have recently developed the capability of cladding even complex arches, widening the already sometimes mind-boggling array of possibilities for designers. "Whatever we can do in wood, we can now do in a clad product," says a manufacturer.



Pozzi® wood windows and patio doors with impact resistant glass.

IMPACT RESISTANT GLASS

A new generation of impact resistant glass is becoming a common code requirement in coastal communities across the South and the Atlantic Coast. In 1992, Hurricane Andrew was more than a disaster, It was a wake-up call for safety officials and local building inspectors.

The new impact resistant glass, developed specifically for the Southeast—that region of the U.S. most vulnerable to hurricanes—have recently become, or soon will become, a dictate of local codes in coastal regions from Texas to Virginia. Manufacturers are finding architects specifying it in Kansas and Iowa to help combat tornado disasters. It is also finding markets elsewhere because of its acoustical and UV resistant properties.

"This is the next big market," says a manufacturer. "Code changes are under consideration in coastal cities in several states, and it is likely we will see this glass become a code standard within a prescribed distance of the shoreline everywhere."

Impact resistant glass is, in most cases today, a laminated five-layer sandwich of glass, resin and mylar. Resin applied to the interior surface of two pressed sheets of float glass strengthens when cooled and hardens like safety glass. If the glass shatters it will stay in tact, adhered to the mylar/resin. It acts to ensure that nothing penetrates the fenestration of a building. Upon impact, glass pieces adhere to the plastic inner layer, remain in the opening and preserve the building envelope.

Hurricane-force winds create tremendous pressures on a building. A 140-mph wind generating 80 pound per sq ft (psf) of wind load on a,4-X-8-ft window translates into a total load of 2,560 pounds of pressure on the window. When windows or doors fail, a tremendous pressure surge inside the building is almost immediate, creating forces that now want to break the structure apart.

To insure impact resistance, Dade County (Fla.) developed the now widely-used test in which a nine-pound two-by-four is fired from an air cannon at a speed of 34 miles per hour to simulate the force of a of a piece of flying debris in a hurricane.

The test has now been adopted by the Southern Building Code Congress International (SBCCI) and is likely to be incorporated into the International Building Code (IBC) when it is adopted.

The test requires three identical specimen window products—at least two must pass the exam. All parts of the test specimen, including glazing and structural framing, must be full-size, using the same materials, glass type, details and methods of construction and fastening as proposed for actual use. The test specimen must consist of the manufacturer's entire assembled window unit.

Windows are tested for impact by both large and small objects. The Large Missile Impact Test uses the 9-lb. 2 x 4. It's actual prescribed impact speed: 50-52 feet-per-second (ft./s). Windows must survive two blows. In a Small Missile Impact Test, specimen windows are subjected to spherical steel balls weighing 2 grams each, propelled from a single device, impacting the window at 130-132 ft/s. A window is impacted 30 times.

Other tests administered in the U.S. are based upon Design Pressure (DP) ratings. These refer to the Air and Water structural ratings of a window based on positive and negative pressures, measured in pounds of pressure per sq ft. Minimum requirements vary from region to region. For some states, the required DP rating is as low as +15 to -15 DP. Parts of the Oregon coast require +30 to -30 DP. Dade County now demands a minimum DP rating of +55 to -55, but that will change in 2002 to +65 to -65.

Windows are actually tested at 1.5 times the required DP to allow for a safety factor. When they have passed, windows are labeled with the appropriate DP rating.

MAKE SURE YOU LOOK!

SBCCI Test Standard SSTD 12-97 (test standard to determine impact resistance from window debris) is now a mandatory requirement for manufacturers selling glass not only in Dade County, but also in coastal areas of Texas and North Carolina.

An additional benefit of the new impact glass, say manufacturers, is that it can also block up to 99 percent of harmful UV rays. Increasing demand for impact glass means that it is now available in virtually every window on the market—casements, awnings, double-hungs, bays, bows, sliding and, even, custom radius windows and patio doors.

GLAZING MODIFICATIONS

Manufacturers say changes are coming in glazing techniques, especially an industry-wide trend toward all-silicone glazing systems, replacing "boot-gasket" glazing.

"Wet-glazing will be a pretty big change from our perspective," says a manufacturer.

In boot-gasket glazing, a piece of vinyl is wrapped around the glass. Its advantage is that the glass in damaged boot-glazed windows is relatively easily replaced. New glazing compounds, which will replace boot glazing, because they adhere rigidly to the glass, are not as amenable to glass replacement.

"Despite that, all manufacturers will soon be using the new sealants because suppliers (like Dow-Corning) have improved their performance so dramatically," says an industry spokesperson. "The new sealants not only give the glass a better fit, but they will perform well over long periods of time, eliminating fear of either seal failure or weather-related problems with the windows."

For a while, it is likely that window manufacturers will continue to produce boot-glazed windows in addition to the new wet-glazed lines. Eventually, however, boot-glazed windows will be discontinued, says the source.

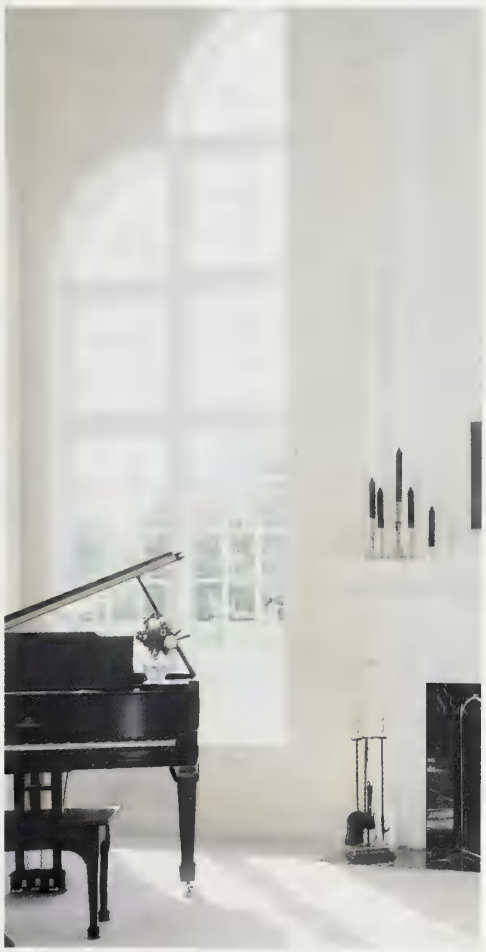
"Aesthetically, wet-glazing will be an improvement," says the source, "but there will be some resistance to it, because for years we have all sold boot-glazing as an advantage because it gives you the ability to replace the glass."



Walls of windows and patio doors by Caradrco®.



Norco® radius head patio door with panel and sidelites.



Caradco® wood windows with simulated divided lites.

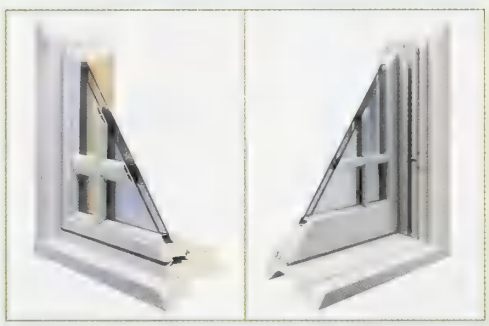
HIGHLY ENERGY EFFICIENT DIVIDED LITES

It doesn't matter if your clients are building a traditional home or the most modern, or even remodeling a century-old classic. When choosing windows, clients all want the efficiency that modern glazing delivers.

New technology allows today's manufacturers to create highly efficient divided lites with a single insulating envelope — a single seal around the perimeter and interior thermal bars that never touch the glass — eliminating any heat transfer caused by conduction.

External muntins of next-generation divided lites are of highly weather-resistant solid aluminum, locked to the glass with very high-bond (VHB) adhesive developed by 3M.

Detailed wood interior muntins help capture the authentic appeal of true divided lite windows, and internal aluminum spacer bars, thicker and wider than traditional shadow bars, are now designed to maintain a 1/8-in. thermal break between the grids and the glass, eliminating "edge effect" heat loss.



Low-emissivity (low E) insulating glass reduces heat loss and conductivity, and can reduce home energy consumption by up to 44 percent. low E is a coating of microscopically thin, optically transparent layers of silver sandwiched between layers of antireflective metal oxide.

The coatings can be tuned to optimize reflection of unwanted solar heat gain in summer and maximize useable daytime solar gains in winter and, at the same time, reduce nighttime winter heat loss.

Because low E products are designed for optimal year-round performance energy savings and comfort, some manufacturers now incorporate low E glass as the standard glass throughout their product lines. "We think it is an important feature, and one that should be specified," says a spokesperson.

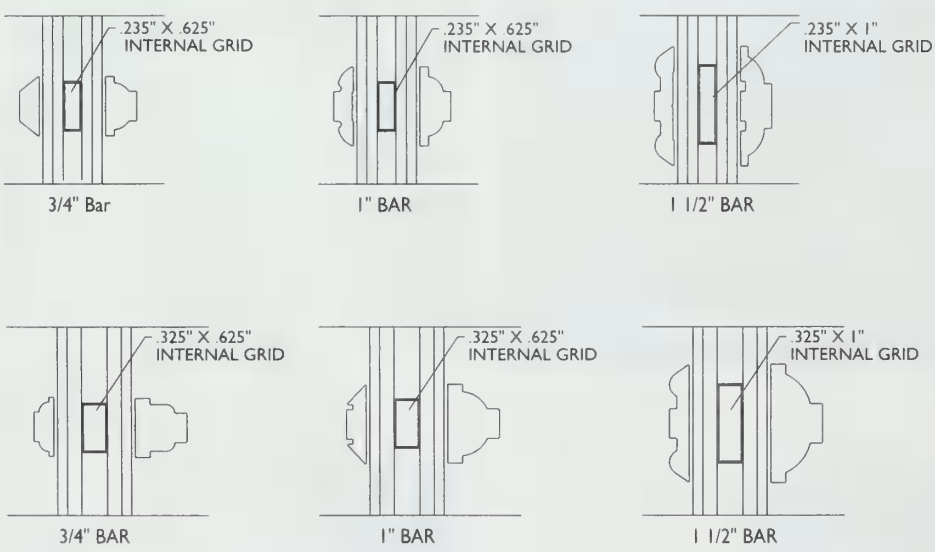
A growing list of historical sites undergoing renovation using contemporary divided lites speaks to the ability of window manufacturers today to address one of the most difficult architectural problems, that of matching classical design while at the same time incorporating today's higher standards for efficiency.

True divided lites, with authentic muntin bars are still available from nearly all manufacturers, but are available only as single-glazed units.

Simulated divided lites are a low maintenance, energy efficient alternative to insulating divided lites, and come in a wide selection of widths (up to 1.5 inches) and profiles and come in standard or custom patterns. They feature detailed wood interior muntins, internal metal shadow bars and weather-resistant solid exterior muntins (attached to the window with very-high-bond (VHB) adhesive.



Norco® wood windows with creative divided lites



SUPERSIZE IT!

Architects who are building large footprint, high-ceilinged homes, or offices are demanding larger doors and windows, and manufacturers are expanding product lines to accommodate that demand. Some wood window manufacturers offer optional ADA-complaint sills that contribute to easy access for commercial width patio doors.

Entryway doors, once nearly universally sized at 3'0 X 6'8" now can be bought off the shelf at heights up to 10 feet. "Twelve-foot doors will likely soon be commonplace," says a manufacturer, and windows. "For instance seven-foot tall, operating casements are a possibility and will grow larger as well."

LEARNING OBJECTIVES

- Compare the new AAMA standard to the older AAMA standards.
- Explain what makes exterior aluminum coating more durable.
- Describe impact resistant glass and where it is used.
- Identify changes in window glazing.

INSTRUCTIONS:

Refer to the learning objectives above. Complete the questions below. Then turn to page 252 and check your answers. Fill out the self report form on page 258 and submit it or use the Continuing Education self report form on Record's web site - www.architecturalrecord.com - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:

1. What is the difference between the older AAMA 2603 and 2604 standards and the new AAMA 2605 standard?

2. If impact resistant glass shatters, what keeps the glass shards in place?

3. What tests are conducted to measure impact resistance?

4. What is the difference between boot-gasket and wet glazing?

5. What other new technology is there for windows?

JELD-WEN

Founded as a small millwork plant in Oregon in 1960, JELD-WEN today is one of the world's largest manufacturers of doors, windows, millwork, and specialty wood products. Three of its US divisions manufacture wood windows: Caradco®, Norco® and Pozzi®.

For further information contact JELD-WEN at www.jeld-wen.com or www.doors-windows.com.

CARADCO®

Since 1866, Caradco® has provided outstanding quality wood windows and patio doors at a great value. Today, Caradco® continues this tradition through a partnership with JELD-WEN, offering you innovations in first-class windows, service, and credibility. We still make our windows from solid Western pine and shape every piece with care and precision. But now, we also use high-technology glazing, cladding components, and finishes to make them perform even better.

For further information contact Caradco® at (800) 626-3105 or visit our Web site at: www.caradco.com.

NORCO®

Norco® began operations in 1921 in Hawkins, Wisconsin, and has recently expanded to a second facility in Ringtown, Pennsylvania. Norco® manufactures a complete line of wood and aluminum clad wood windows and patio doors in a wide range of standard and custom products. The product line is versatile, flexible and full of options. In addition, Norco® has a reputation for solid delivery.

For further information contact Norco® at (800) 826-6793 or visit our Web site at: www.norcowindows.com.

POZZI®

Pozzi wood windows is an industry leader known for producing superior windows comprising artful, innovative window design. Pozzi®'s success over the years can be accredited to high-quality products, exceptional performance and one of the most reliable service records in the industry. Further, Pozzi® enables customers to design their own original creations. In fact, over 40 percent of our work is one-of-a-kind custom masterpieces. Whether your designs or ours, we take great pride in building the unique and unusual, while maintaining the highest engineering performance standards.

For further information contact Pozzi® at (800) 547-6880 or visit our Web site at: www.pozzi.com.

Or call (800)877-9482, ext. CEU

Circle 74 on inquiry card

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Easy On The Environment, Easy On Your Budget
The independent tests prove it – now you can save 22¢ or more per square foot on one- or two-story commercial projects.

Two Innovations, One Incredible Sheathing
Fiberock® Brand Sheathing, made using USG's patented Aqua-Tough™ technology, delivers extraordinary water resistance. Designed for use in Exterior Insulation and Finish Systems (EIFS), barrier, water-managed and other exterior applications, Fiberock Brand Sheathing with Aqua-Tough gives you:

- Integral Water Resistance – Unlike other sheathings,



Thanks to its incredible strength, Fiberock Brand Sheathing provides the same performance at 24" o.c. as other sheathings do at 16" o.c. (for wind load up to 30 psf).

And to save even more money, you can increase the fastener spacing from 8" to 12" without losing system performance. Less framing material, lower installation costs, superior strength.

Sheathing that's as good for your reputation as it is for the environment.

Fiberock Brand Sheathing with Aqua-Tough does not get its water resistance or strength from its facing. The unique gypsum/cellulose fiber formulation provides water resistance throughout the entire panel, not just on the surface.



- Built-in Water Drainage Channels – On the back of each panel are drainage channels that help direct moisture out of the wall.

What's more, this unique formulation also delivers superior fastener holding power and adhesive bonding.

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USG Presents

A SPECIFICATION GUIDE FOR EXTERIOR WALL SHEATHINGS

by: Robert C. Grupe, CSI
Director, Architectural and Technical Solutions
USG Corporation

On the most basic level, exterior wall sheathings serve to enclose wood or metal-framed buildings and provide a surface for application of exterior claddings and finish materials. However, the role of sheathings extends well beyond these basics. Depending on the building design, exterior sheathings are often required to provide racking or shear resistance, fire resistance and resistance from water or moisture. They may also need to meet non-combustible construction requirements, as specified by building codes.

When architects create sheathing specifications, they need to take these performance criteria into consideration while simultaneously reviewing a number of other construction issues, including panel dimensional stability and "flatness," fastener holding strength, installation ease, contractor acceptance and, of course, installed costs.

To create consistently successful exterior sheathing specifications, architects should select products that best meet building fire, structural and moisture design requirements while balancing construction cost and installation issues. The process begins by understanding the basic performance capabilities and limitations of the major sheathing product types.

SHEATHING MATERIALS

The age of modern sheathings dawned in the 1940s when architects began specifying 4- by 8-foot plywood panels in place of 1- by 8-foot boards to save on labor costs. Plywood was used extensively during the post World War II building boom and remained the only practical sheathing panel until paper-faced gypsum sheathings were introduced in the 1960s. In the 1970s, another sheathing panel – rigid foam – was introduced to meet demand for energy-efficient construction. OSB (oriented strand board) was developed as an alternative to plywood in 1981. Glass-mat-faced gypsum panels and cement board panels were also introduced during the 1980s. Finally, in 2000, high-performance gypsum/cellulose sheathing panels were brought to market.

Today, there are four primary categories of exterior sheathings: gypsum-based panels, cement-based materials, wood-based panels and plastic or foam products. Following is an overview of the specific sheathings available within each category.

Gypsum-Based Sheathings

Thanks to their excellent fire resistance and other performance attributes, gypsum-based sheathings are widely used in non-combustible construction. The products are available either surface-reinforced with paper or a glass-fiber

AIA/ARCHITECTURAL RECORD
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Use the learning objectives below to focus your study as you read **A SPECIFICATION GUIDE FOR EXTERIOR WALL SHEATHINGS**. To earn one AIA/CES Learning Unit including one hour of health safety credit, answer the questions on page 201, check the answers on page 252 and follow the reporting instructions on page 258 or, use the Continuing Education self report form located at www.architecturalrecord.com.

LEARNING OBJECTIVES:

- Explain the role exterior wall sheathings play in building design.
- Describe the relative merits of the major types of sheathing panels.
- Explain the key performance criteria that should be considered when specifying sheathings.

mat or core-reinforced with cellulose fiber. (See *Gypsum Panel Sheathing Types* illustrations.) Gypsum sheathings have the strength to effectively transfer lateral wind loads to structural framing. When properly fastened, they will stay secured to the wall for the service life of the building under both positive and negative wind loads, but they do not match the shear resistance of plywood or OSB. This usually necessitates the application of supplemental diagonal bracing to the framing. The overall performance and, especially the water-resistance, of gypsum sheathings varies depending upon the panel type.

Sheathing Performance Attributes

Panel	Weather Exposure (Water Resistance)	Fire Resistance	Suitable for Bonded Veneers	Nail Base	Shear Resistance	Dimensional Stability
Gypsum/Cellulose	1-year exposure warranty[1]	Excellent	EIFS only	Fair	Moderate	Excellent
Glass-Mat-Faced Gypsum	6-month exposure warranty[2]	Excellent	EIFS only	Unacceptable	Unacceptable	Excellent
Paper-Faced Gypsum	30-day exposure warranty[3]	Excellent	None	Unacceptable	Unacceptable	Excellent
Cement Board	Excellent	Excellent	Excellent in wet climates	Marginal	Marginal	Excellent
Fiber Cement	Excellent	Moderate	Adequate	Unacceptable	Marginal	Adequate
OSB	Marginal	Combustible	None	Excellent	Excellent	Marginal

Notes: 1. Offered with USG's FIBEROCK® Brand Sheathing with AQUA-TOUGH™ 2. Offered with Georgia-Pacific's Dens-Glass® Gold Sheathing 3. Offered with USG's SHEETROCK® Brand Gypsum Sheathing

Paper-faced gypsum sheathings consist of a fire-resistant treated gypsum core encased in water-repellant paper on both sides and the long edges. These surface-reinforced panels meet the requirements of ASTM C79 and install quickly and easily. Although paper faced sheathings can shed rainwater for several months if properly installed, they are typically warranted against weather exposure for only 30 days. When exposed to moisture for prolonged periods of time, the paper surface plies can separate or the paper can delaminate from the gypsum core. If water is trapped in the core, it can soften or dissolve it. The panels provide marginal fastener holding power, and long-term performance is reliant on proper design and installation.



Gypsum Panel Sheathing Types
Paper-faced and glass-mat-faced gypsum sheathings are surface-reinforced (left). Gypsum/cellulose panels, which are core-reinforced (right), offer superior performance including enhanced moisture resistance and fastener holding power.

Glass-mat-faced gypsum sheathings meet the requirements of ASTM C1177 and are a popular choice for non-combustible construction, due largely to their improved weather resistance, light weight and fast installation. Like paper-faced gypsum panels, glass-mat panels are surface reinforced and rely on the face layer for water resistance and strength. The panels are warranted against weather exposure for six months. However, under prolonged exposure to moisture, the core can soften and degrade. Glass-mat panels are also susceptible to pull-off by lateral wind loads, particularly when the panel fasteners are driven through the glass-mat face. Another drawback with glass-mat panels is the fact that the embedded glass fibers in the facing become airborne as the panels are handled and cut, which can cause skin irritation and itching for installers.

Sheathing – Typical Applications

Panel	Fire-Resistant Partition	Brick Veneer	Aluminum & Vinyl Siding Backup	Conventional Stucco Base	Adhesively Bonded EIFS	Direct-Applied Finishes (Tile & synthetic stucco)
Gypsum/Cellulose	1- and 2-hour fire-rated	Joint treatment recommended	Enhances wall straightness	Requires weather barrier	Excellent	Acceptable for limited applications
Glass-Mat-Faced Gypsum	1- and 2-hour fire-rated	Joint treatment recommended	Marginal	Requires weather barrier	Acceptable	Unacceptable
Paper-Faced Gypsum	1- and 2-hour fire-rated	Requires weather barrier	Marginal	Requires weather barrier	Acceptable	Unacceptable
Cement Board	1- and 2-hour fire-rated	Requires weather barrier	Unacceptable	Requires bond breaker behind stucco	Excellent	Excellent (requires weather barrier)
Fiber Cement	1-hour fire-rated	Joint treatment recommended	Unacceptable	Requires bond breaker behind stucco	Excellent	Marginal
OSB	Marginal	Joint treatment recommended	Provides additional nail base	Requires weather barrier	Unacceptable	Unacceptable

Gypsum/cellulose core-reinforced sheathing is the most recent introduction in the gypsum-based sheathing category. These panels are being specified with increasing frequency in applications ranging from schools to hotels to shopping centers.

Unlike paper-faced and glass-mat-faced gypsum sheathings, gypsum/cellulose panels are core-reinforced. They feature a homogenous cross-section made from cellulose (wood) fibers, gypsum and water-resistant additives. The core-reinforced technology offers significant performance advantages.

Gypsum/cellulose panels do not rely on a surface layer for strength, fastener holding power or moisture resistance. This contrasts with paper-faced and glass-mat-faced sheathings, which lose strength and water resistance if their face layers are torn or pierced or if water penetrates the cut end of the panel. Also, if fasteners are overdriven into surface-reinforced panels, the attachment to the framing is significantly weakened. Gypsum/cellulose panels have no face layer to separate from the core and will not lose strength when they are cut or when fasteners are overdriven.

The panels are also stiffer than other gypsum-based sheathings, providing a flatter, smoother surface – even under high wind load conditions. While the panels do not score and snap like paper-faced and glass-mat-faced panels, they install quickly. And unlike glass-mat panels, they do not itch or irritate installers' skin.

Gypsum/cellulose panels are available in 1/2- and 5/8-inch thicknesses. The 5/8-inch-thick panels are classified as Type X for fire resistance and meet the physical properties of ASTM C1278. The 5/8-inch-thick panels are acceptable for use in non-combustible construction, although they do not meet strict definitions for non-combustible materials.

The panels can offer significant installed cost savings. Due to their superior structural strength and fastener holding power, they are the only gypsum-based sheathing that can be installed over 24-inch o.c. framing (with fasteners spaced 8 inches o.c.) while withstanding a 30 psf wind load before surpassing an L/240 design criteria. This can translate into significant installed cost savings for a range of applications, including Exterior Insulation and Finish System (EIFS) construction, where a design wind load of 30 psf is required in most one- and two-story commercial construction.

Cement-Based Sheathings

Cement-based sheathings include cement board panels made from aggregated portland cement reinforced with glass-fiber mesh on both sides, fiber cement panels and concrete block.

Cement board panels are a top choice for both combustible and non-combustible construction wherever moisture resistance is a priority. The panels are "water-durable," meaning they are highly resistant to moisture

NEW SHEATHING SCORES POINTS AT CMGI FIELD

Inside the framework of professional football's new CMGI Field, within the steel and concrete beneath 50-yard-line upper deck seating, two hangers and one apprentice – perched 55 feet off the ground on scaffolding – fasten a piece of FIBEROCK® Brand Sheathing with AQUA-TOUGH™ to metal ceiling studs.



USG's FIBEROCK Brand Sheathing was applied over the stadium's metal-framed exterior walls. The gypsum/cellulose panels provide excellent fire and moisture resistance while delivering a smooth, flat surface for application of EIFS finish

As the final screws are set, the crew members suddenly realize they've been working too fast. The scaffolding crew has fallen behind, and the hangers are out of room to complete their work. Who would have thought the sheathing, a new core-reinforced gypsum/cellulose panel from USG, would have gone up so quickly?

"My initial impression with this board was that it would take longer to install," admitted Joseph Duffy, vice president at Sweeney Drywall Finishes Corp., Burlington, Mass., and general manager for the stadium project. "Well, it doesn't take longer to cut. It doesn't take longer to hang. It's just great stuff."

That kind of reaction from the field is good news for architects who would like to take advantage of the panel's superior performance capabilities. The fire-resistant panel offers integral moisture resistance, excellent dimensional stability, superior fastening power and better shear resistance than conventional surface-reinforced gypsum panels.



CMGI Field, the new home for the New England Patriots NFL team, is scheduled for completion in 2002.

CMGI Field, scheduled to open in 2002, will replace Foxboro Stadium in Foxboro, Mass., as the home for the New England Patriots NFL franchise.



Gypsum/cellulose panels do not cause skin irritation or itch during cutting and handling.

"CMGI Field will be a world-class sports facility," said Dan Kraft, director of the Kraft Group, owner of the Patriots franchise. "As such, our design and construction teams were insistent on using only top-line construction materials, including the FIBEROCK sheathing. The product not only delivered the quality we needed, but it helped boost our construction productivity."

Sweeney Drywall has the contract for the stadium's exterior metal framing, sheathing and EIFS. The project was the first time that the company had used a gypsum/cellulose sheathing panel. The big question was whether the sheathing would go up quickly.

The answer turned out to be "yes," says Duffy, who keeps close tabs on costs and crew productivity at CMGI Field. The labor time required to install 210 MSF of sheathing could easily put the operation into the red, but Duffy and the hanging crew have found FIBEROCK Brand Sheathing to be as workable as glass-mat-faced panels.

"You can cut it and not get loose glass all over your arms and the back of your neck," said Jacques Larochelle, foreman at Sweeney Drywall. "You don't have the problem of itching while you work with this product."

That's what Duffy likes to hear. The fewer the complaints, the better the production and work quality.

"FIBEROCK Brand Sheathing is a product we intend to keep using," said Duffy. "It's a product I expect architects will be specifying more often."

damage. They will not rot or delaminate, bend or warp. The product is ideal for use under EIFS, ceramic tile and thin brick, and should be the sheathing of choice for climates where rainfall exceeds 20 inches per year. The panels also provide excellent fire resistance.

Fiber cement sheathings also provide excellent water durability and are typically denser than cement board panels. These panels are made from portland cement reinforced with cellulose, and should not be confused with gypsum/cellulose panels. Their greater mass makes them inelastic and brittle, and therefore more installation sensitive. They also do not provide the level of fire resistance that cement panels offer.

Although technically not a sheathing, *concrete block* is typically used as a replacement for sheathing and framing. It is offered by a variety of manufacturers and provides excellent performance and value when used on one-story commercial and institutional structures where durability is a priority. Installed costs for the product increase substantially for construction above one story. Concrete block is also the predominant choice for residential construction in southern Florida. When thicker-type blocks are used, the material can offer excellent fire resistance. However, it is thermally inefficient.

Concrete block is also inelastic, making it sensitive to building movement from seismic and other sources. During construction, it requires supplementary bracing and, since there is no cavity in the wall, additional labor is needed to run electrical and HVAC equipment.

Wood-Based Sheathings

Plywood and OSB are engineered wood products typically used as sheathings in residential construction. When properly attached, these panels offer excellent racking and shear strength. They also provide a nailing base for siding materials that require fastening between studs. Wood-based sheathings work with the framing to resist wind, seismic and other loads applied either perpendicular or parallel to the plane of the wall. While various grades of plywood offer differing levels of exposure performance and moisture resistance, wood-based sheathings may swell, warp or rot when exposed to damp environments. The panels also provide little or no fire resistance.

Plastic or Foam Sheathings

Plastic or foam sheathings are lightweight panels made of polystyrene or polyisocyanurate, used principally for insulation. They have no structural capacity unless heavily reinforced. Their principal use is for insulation. These high R-value panels require special detailing to meet any fire resistance rating. The products themselves will not support flame, but they can cause the premature failure of most fire endurance assemblies.

Polystyrene sheathings can withstand wet environments; polyisocyanurate products will degrade when exposed to moisture and therefore are covered with a foil skin for protection. However, these skins can act as a second vapor retarder, which may lead to vapor control problems unless special venting is included in the building design.

SPECIFICATION CRITERIA

While there is no single sheathing perfect for every project, there is a range of critical criteria that must be factored into any specification. In this section, we'll look at the three primary factors that affect any sheathing specification: performance, installation and cost.

Performance Factors

Fire resistance is a major consideration for any sheathing specification. Residential (combustible) construction allows architects to include wood-based plywood and OSB sheathings, as well as polystyrene and polyisocyanurate foam core sheathings as part of their specification choices. Non-combustible construction eliminates the use of these products. Gypsum-based sheathings and cement board panels provide excellent fire resistance, while fiber cement sheathings offer reduced fire resistance.

Water resistance is a critical consideration that impacts both project construction and long-term exterior performance. During construction, sheathings are used to enclose buildings, permitting interior work to continue regardless of weather conditions. Sheathings that can withstand direct exposure to weather for longer periods permit greater flexibility in construction scheduling.

Cement board panels offer the best performance in this area, as they are literally unaffected by moisture. Gypsum/cellulose sheathing, which is warranted against exposure problems for one year, is also an excellent choice, as are fiber cement panels.

Of course, water resistance also plays a key role in long-term exterior wall performance. The importance of water resistance is most vividly demonstrated by the high occurrence of EIFS failures in North Carolina, Georgia and other areas of the country beginning in the mid-1990s. "Barrier" EIFS design was based on the premise that moisture would be sealed out at the surface of the wall. As such, barrier EIF systems did not incorporate basic water management or "rainscreen" principles to direct intruding moisture out of the wall system as quickly as possible. As a result, when moisture did penetrate barrier EIF systems through window openings, imperfect flashing and deteriorated caulks and sealants, non-moisture-resistant sheathings such as OSB and plywood and gypsum-based panels all failed.

While the problems with barrier EIFS provide a dramatic example, similar situations can occur with other improperly designed or poorly maintained brick veneer, stucco, ceramic tile and aluminum, vinyl and wood sidings. While these latter cladding systems generally incorporate sound water management principles, moisture intrusion can never be completely eliminated.

As such, specifiers should match sheathing selection with the local climate conditions. For EIFS, brick veneer and ceramic tile finishes, specify cement board panels for wet climates such as coastal areas and regions with moderate to heavy rainfall, especially those areas with average rainfall exceeding 20 inches. For more moderate moisture conditions, high-performance gypsum/cellulose panels provide an ideal option, as these panels offer integral water resistance. Wood-based and paper-faced or glass-mat-faced panels make sense in drier, less windy climates.

Shear resistance and structural performance are also key considerations. Shear resistance refers to the ability of the sheathing to ensure that framing does not move out of square or collapse under wind load or seismic conditions. (See *Sheathing Wind Load and Shear Performance* illustrations.) Under positive wind load conditions, sheathing deflects between framing members. Under negative wind loads, the panels bend away from framing. Regardless of the direction of the wind force, the sheathing panels must not deform excessively or break away from the framing.

Sheathing Fastener Holding Strength and Allowable Wind Load Comparisons

Performance Value — Gypsum-Based and Cement Board Sheathing Panels

	Gypsum/Cellulose Sheathing	Cement Board Panel[3]	Paper-Faced Gypsum Sheathing	Glass-Mat-Faced Gypsum Sheathing
Fastener Holding Strength (lbs)[1]	163	125	80	80
Typical Allowable Wind Load (psf)[2]	61	46	30	30

Notes: 1. Based on published mechanical properties. 2. Panel-only data. Based on framing spaced 16 inches o.c. and fasteners spaced 8 inches o.c. 3. Based on panel in wet or dry condition.

Wood-based sheathing panels such as plywood and OSB generally provide the best shear resistance. However, these panels are combustible and are therefore acceptable only in residential (combustible) construction. For non-combustible construction, gypsum/cellulose sheathings deliver the best performance of any panel product. They provide wind load resistance of 61 psf (over 16-inch o.c. framing with fasteners spaced 8 inches o.c.) and a holding strength of 163 pounds per fastener. This is significantly better than cement board panel performance and more than double the strength of paper-faced and glass-mat-faced gypsum sheathings. (See *Sheathing Fastener Holding Strength and Allowable Wind Load Comparison* chart.)

Sheathings that offer higher shear resistance performance generally provide greater structural stability and superior fastener holding power, as these qualities directly impact shear resistance. Shear-resistant panels also tend to lay flatter on the wall surface, ensuring a smoother, more visually appealing finished exterior.

Panel expansion or contraction due to heat and moisture is a final performance consideration. The more stable the material, the less potential there is for cracking and buckling to occur on the building exterior. Once again, specifiers should consider the local climate before choosing a substrate.

Cement board panels and gypsum panels, especially core-reinforced gypsum/cellulose panels, are inherently more stable than wood-based products when exposed to variations in temperature and moisture conditions. Wood-based sheathings are typically unaffected by temperature changes. However, they can shrink considerably under prolonged high temperatures and, as previously noted, the panels can warp and swell when wet.

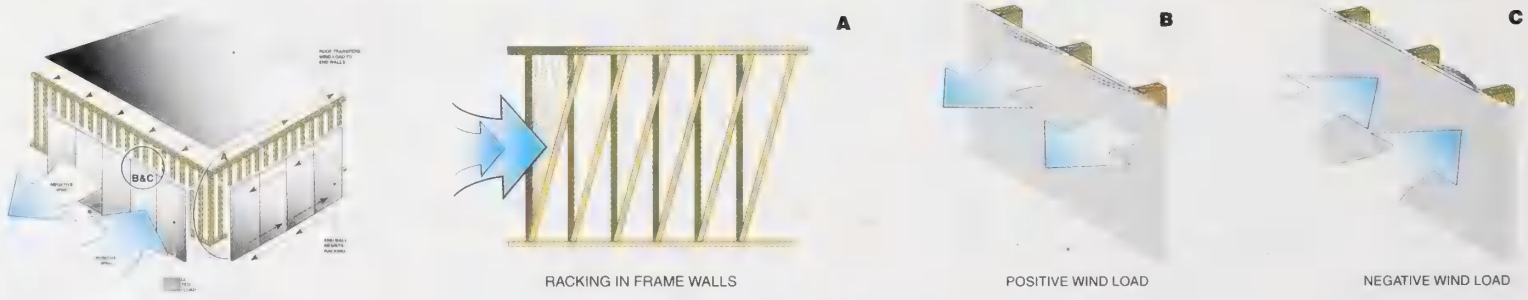
Installation Issues

Sheathing installation considerations should be focused on three factors: handling, cutting and fastening. The easier a substrate is to handle, the more likely it will be installed correctly and efficiently. Smaller, lighter and more rigid panels are easier to lift and put into place, while larger, heavier and more flexible panels are more difficult to erect.

How panels cut and fasten is just as important. Paper-faced and glass-mat-faced gypsum panels cut easily using a score and snap method. Cement board panels can also be scored and snapped. Plywood and OSB are cut with a power saw, while gypsum/cellulose panels can be cut with a power saw or shears. Because they are core-reinforced, gypsum/cellulose panels offer distinct fastening advantages compared to other gypsum-based panels. Most importantly, gypsum/cellulose panels eliminate problems resulting from overdriven fasteners, which can weaken surface-reinforced panels. Overall, gypsum/cellulose panels can usually be installed as quickly – or more quickly – than paper-faced and glass-mat-faced panels. This, coupled with the fact that cellulose/gypsum panels do not cause installer irritation or itch (an issue with glass-mat-faced gypsum panels), has led to quick contractor acceptance.

Cost

Ultimately, the choice of sheathing comes down to cost versus performance – getting the best sheathing value for the money. Cement board is the costliest panel product, but it also offers the best long-term performance. When viewed in terms of the building life cycle, cement board is often the most economical choice for EIFS, brick veneer and ceramic tile. Similarly, gypsum/cellulose panels offer excellent cost/performance value. The installed cost for gypsum/cellulose sheathings is often less than that of glass-mat-faced panels, yet gypsum/cellulose panels offer clearly superior performance.



Sheathing Wind Load and Shear Performance
Sheathing panels provide shear resistance (Detail A) to ensure that the building framing does not move out of square or collapse under wind loads or seismic conditions. Under positive wind load conditions (Detail B), the sheathing deflects between framing members. Under negative wind loads (Detail C), the panels bend away from the framing.

LEARNING OBJECTIVES

- Explain the role exterior wall sheathings play in building design.
- Describe the relative merits of the major types of sheathing panels.
- Explain the key performance criteria that should be considered when specifying sheathings.

INSTRUCTIONS:

Refer to the learning objectives above. Complete the questions below. Then turn to page 252 and check your answers. Fill out the self report form on page 258 and submit it or use the Continuing Education self report form on *Record's* web site - www.architecturalrecord.com - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:

1. Explain the function that sheathings play in building design.

2. What are the key performance differences between surface-reinforced gypsum panel sheathings and core-reinforced gypsum panel sheathings?

3. What are the advantages – and disadvantages – of using wood-based sheathings?

4. Why is water resistance an important sheathing performance criteria?

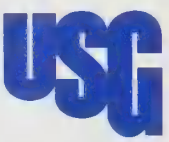
5. What installation issues should be considered when specifying sheathings?

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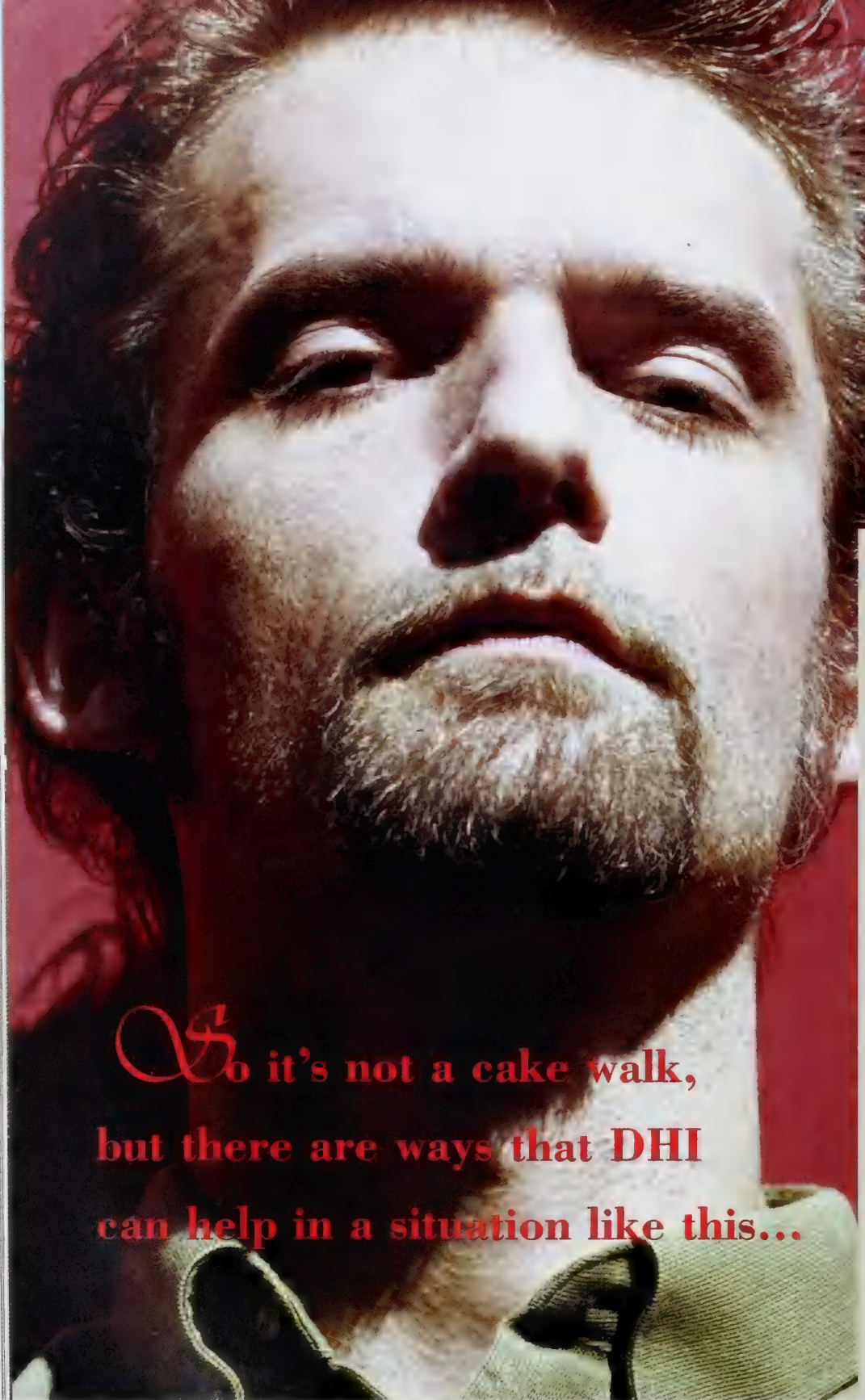
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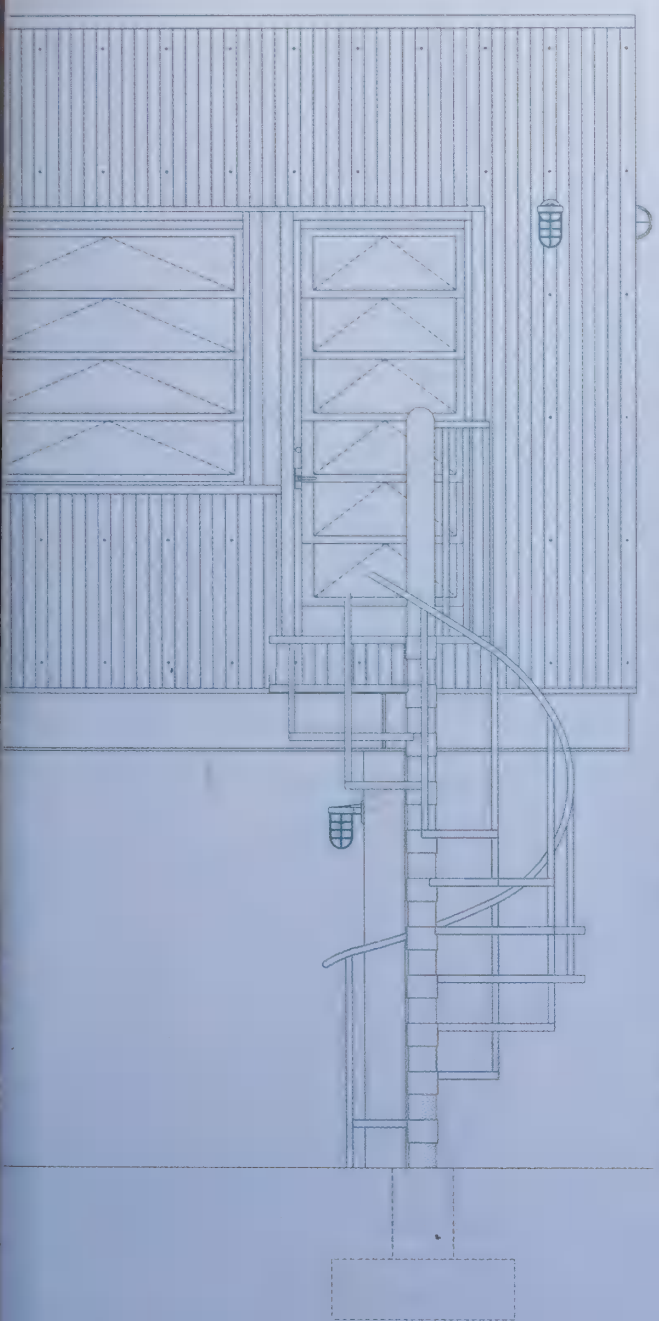
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RESIDENTIAL

Metal Funk—
Warning: This is not your average house



This section comes with a caveat. The houses contained herein might not be for everyone. Traditionally, metal—inexpensive and often prefabricated—has been used for industrial and manufacturing purposes. As a residential cladding material, it has not gained popular acceptance.

But metal housing has been around for a while, usually hovering somewhere around the cutting edge. One of the first widespread residential uses of metal came with the introduction of the Lustron House in 1949. Originally built as a cheap, practical way to help fill the postwar housing gap, about 2,500 of these prefabricated houses were built. Today, Lustron Houses are hip collectibles. The Lustron, it seems, was way ahead of its time.

Unconstrained by our traditional notions of home as being brick, wood, or stone, the new houses made of metal seen on these pages also suggest a certain desire to be different. Danna Sigal and Ron Godfredsen describe their work as "exploration and adventure," and their Butterfly House is no exception. Amid Spanish- and early-California-style residences in the Hollywood Hills, the structure is a standout of corrugated galvanized steel. It certainly doesn't bear any resemblance to most speculative developer houses. Proving that architects often take risks when designing for themselves, the sheet-metal-clad tower Frederick Phillips created for his family is aesthetically more akin to a modern office building than to the typical American house. It asserts itself boldly in one of Chicago's toughest neighborhoods.

Villa KBWW in Utrecht doesn't look like a house at all. An almost square assemblage of metal and glass, it looks something like a Rubik's Cube. Certainly, the use of transparency challenges the very idea of the private home. Finally, the Yardbird in Charlottesville, Neal Deputy's answer to the home office, is the toolshed reinvented by an architect and placed atop pilotis. In a typical suburban neighborhood in the city that is home to Monticello, this building just seems to shout "notice me!" *Elizabeth Harrison Kubany*

209 **Residential News**
210 **Butterfly House**
Godfredsen Sigal Architects
216 **Villa KBWW**
De Architectengroep and MVRDV
220 **Phillips House**
Frederick Phillips and Associates
226 **The Yardbird**
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227 **Residential Products**



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Residential News

Department of Housing and Urban Development announces 2001 AIA/HUD award winners

HUD and the AIA announced the six winners of the 2001 AIA/HUD Secretary's Housing and Community Design Awards for their innovative, affordable, and accessible building designs. 1. East Lake Commons, Decatur, Georgia; Architect: Village Habitat Design, LLC; Associate Architect: Pimsler Hoss Associates; Owner: East Lake Commons Homeowners Association. 2. Swan's Market Place, Oakland, California; Architect: Pyotak Associates; Associate Architect: Y.H. Lee; Owner: East Bay Asian Local Development Corp. 3. TriBeCa Pointe, Battery Park City, New York City; Architect: Gruzen Sampton, LLP; Owner: Rockrose Development Corporation. 4. Center Commons, Portland, Oregon; Architect: Vallaster and Corl Architects and Otak Architects, PC; Developer: Lennar Affordable Housing. 5. Arbolera de Vida, Albuquerque, New Mexico; Architect: Design Workshop and Studio E Architects; Owner: Sawmill Community Land Trust. 6. Inglis Gardens at Eastwick, Philadelphia, Pennsylvania; Architect: Cecil Baker and Associates; Developer: Inglis Housing Corporation.

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COMMUNITY BUILDING BY DESIGN





Built into the hillside, the Butterfly House is clad entirely in corrugated galvanized sheet metal, differentiating it from the surrounding houses.

With metal cladding, Godfredsen Sigal Architects transforms a basic building into a stylish hillside house

By John Peter Radulski

The Butterfly House—a vibrant melding of galvanized corrugated steel, Douglas fir, and glass—stands in marked contrast to the Spanish- and early-California-style houses most common to the famed Hollywood Hills. Hired by a client to transform an existing nondescript bungalow into a showplace, architects Ron Godfredsen and Danna Sigal were presented straightforward mandates for how to build on the remnants of the original structure, which had been stripped down to its insulation, stucco, and studs: Use economically priced and easily worked materials; expand the square footage; maximize outdoor activity areas; and highlight views to Marina del Rey and downtown Los Angeles.

Since establishing their eponymous firm in Venice, Calif., in 1994, the husband-and-wife team has completed commissions ranging from a 400-square-foot residential addition to a casino and a retail store for *Hustler* publisher Larry Flynt. Such diversity, says Sigal, has allowed the firm to team with clients in the "exploration and adventure" of design and construction tethered to varied constraints.

Alighting in the craggy Hollywood Hills, the Butterfly House has a sculptural staircase that sweeps around the facade.

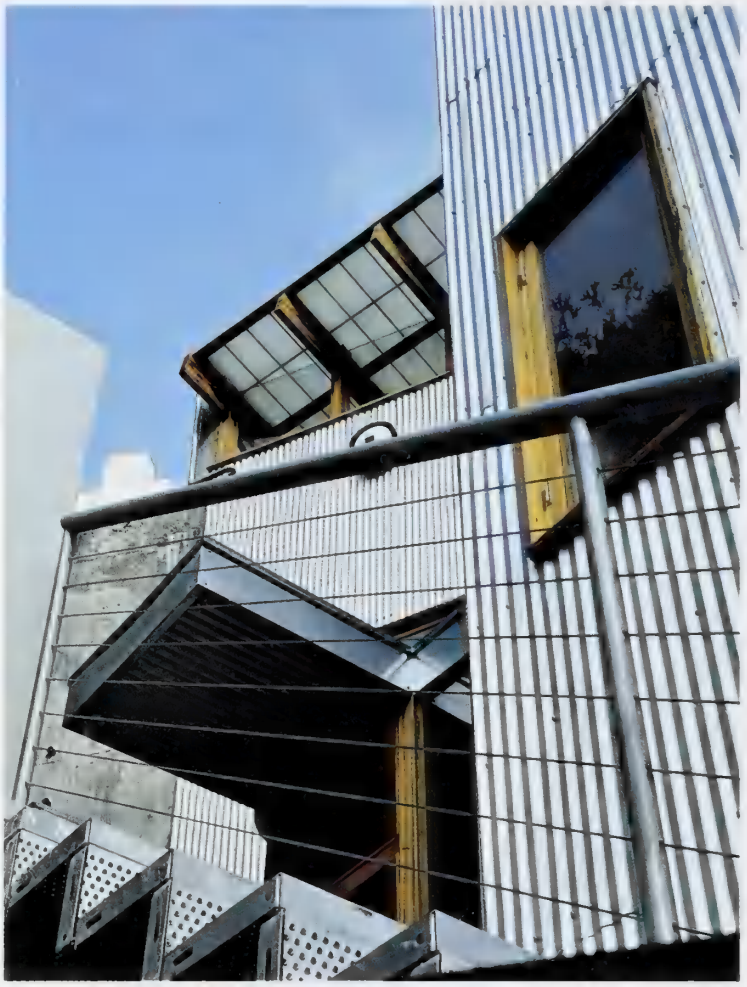
Before considering forms and materials for the Los Angeles house, the architects and client Doug Dalton—Sigal's first collaborator, a contractor who has since supported the couple on 10 projects—established the specific physical requirements. Sigal envisioned a house designed to meet the needs of residents with a very specific lifestyle, "a live/work environment for people who entertain a lot as part of their occupation in the film industry." The next challenge was how to expand the nondescript shell. The original two-story house was 15 feet deep and 40 feet wide and abutted the base of a solid granite formation that receded 45 degrees from base to top. Godfredsen and Sigal had three 28-foot-long caissons hammered into the granite (at a rate of 7 inches per day) in order to construct a retaining wall and to build an extension onto the rear of the house. This effort made it possible to almost double the building's previous footage, to 3,610 square feet.

John Peter Radulski is a writer and design consultant who lives in Westport, Conn. He is the former editor of Hospitality Design *magazine.*



Douglas Fir window frames contrast with the metal cladding and give a preview to the house's interior. Perforated galvanized steel stairs lead to the front door; the overhang above the main entrance (opposite) is brushed sheet metal and corrugated steel.

Project: *Butterfly House*
Location: *Los Angeles*
Architect: *Godfredsen Sigal Architects—Ron Godfredsen, Danna Sigal, partners; Maurice Harwell, Jason Pettinato, project team*
Engineers: *Parker-Resnick Structural Engineering (structural)*
Consultants: *Tim Thomas Associates (lighting)*
General contractor: *Dalton Construction*



Fiberglass roof panels, supported by glu-lam wood beams and steel rods, sit atop the house like the wings of a butterfly (below). The exterior stairs, which begin at the entrance (left), progress almost continually to the roof deck (below), where views are showcased.





The design of the house was inspired in part by the architects' visit to Walter Gropius's home in Lincoln, Mass. Godfredsen says they admired its "simplicity of materials and form." They were also attracted to the shape of a 'butterfly' stool designed by Sori Yanagi that they saw there.

Physically and philosophically central to the Hollywood Hills project is an almost continual progression of stairways ascending nearly 45 feet from the street to the glass-walled roof deck, where a pair of 16-by-32-foot translucent fiberglass panels appear like wings above the varied landscape.

A melding of galvanized corrugated steel, Douglas fir, and glass, the house contrasts vibrantly with its traditional neighbors.

Exterior stairs of perforated galvanized steel lead to the front door, while the overhang above the main entrance incorporates brushed sheet metal on the fascia, with corrugated galvanized steel cladding the top and bottom. Oriented vertically, the same material sheathes the exterior walls. Douglas fir–framed windows and doors break up the expanses of steel, allowing bright rays of daylight to infuse the interior.

Once inside, the architects trade metal for Douglas fir, glass, and drywall. Wood wraps the stairwells that rise from the entrance foyer up to the fiberglass-topped third floor. Noting the open space that extends between these two points, Godfredsen explains that the interiors were designed to flow almost seamlessly from floor to floor and



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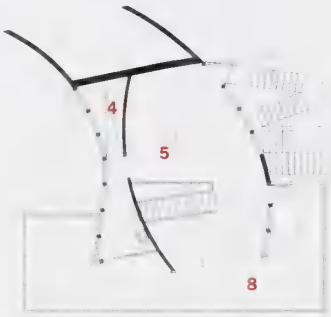
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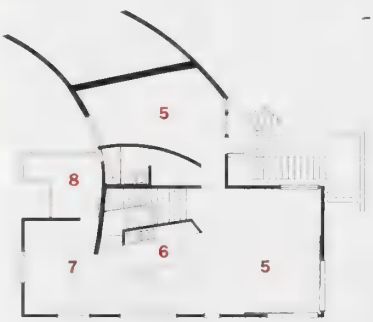
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FIRST FLOOR N 0 10 FT. 3 M.

1. *Entry*
2. *Bedroom*
3. *Dressing/bathroom*
4. *Bathroom*
5. *Lounge/living*
6. *Kitchen*
7. *Dining area*
8. *Terrace*





Inside, the architects traded metal surfaces for Douglas fir, glass, and drywall to create warm, light-filled living spaces.

within each level to achieve a high degree of transparency. Likewise, large expanses of glass—such as a pair of 8-by-12-foot windows in the living area that slide open to "remove" one corner of the room—accentuate the flow between indoors and out. On the top floor, curved glass walls with barely-there Douglas fir framing almost negate any sense of enclosure. Natural light also enters in through fiberglass roof panels supported by glued and laminated wood beams and steel rods.

Godfredsen and Sigal designated the rectangular streetside mass of the house as "urban," a series of rooms from which city and ocean views can be scanned. Both vertically and horizontally oriented, windows either slide open or tilt outward; their asymmetrical placement further enriches the elevation. Meanwhile, the curvilinear addition to the rear faces the golden-hued granite and native grasses and other flora that surround the site. The polished arcs and planes of the house, like a butterfly alighting on the hillside, create a dynamic sense of animated beauty. ■

Sources

Roof deck coating: *Pacific Polymer*
Roofing system: *Kalwall*
Wood doors: *Terry Lumber Sash and Door*
Locksets: *Omnia*
Bathroom-finish hardware: *Hastings*
Cabinet hardware: *Forms + Surfaces*
Paints and stains: *Frazee Paint, McClosky Marine Spar Varnish*
Flooring: *Saucedo Hardwood Floors*

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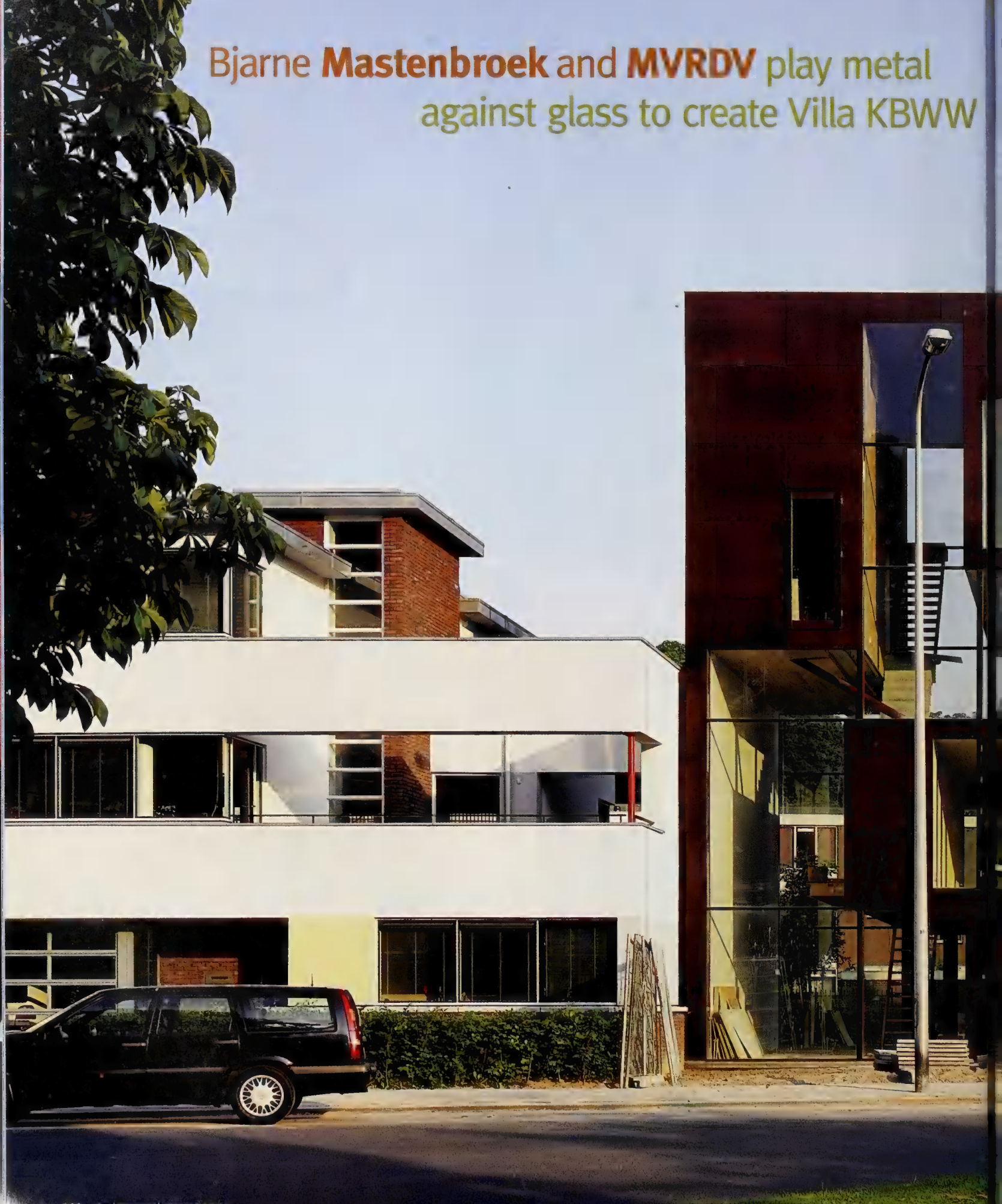
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Bjarne **Mastenbroek** and **MVRDV** play metal against glass to create Villa KBWW



By Tracy Metz

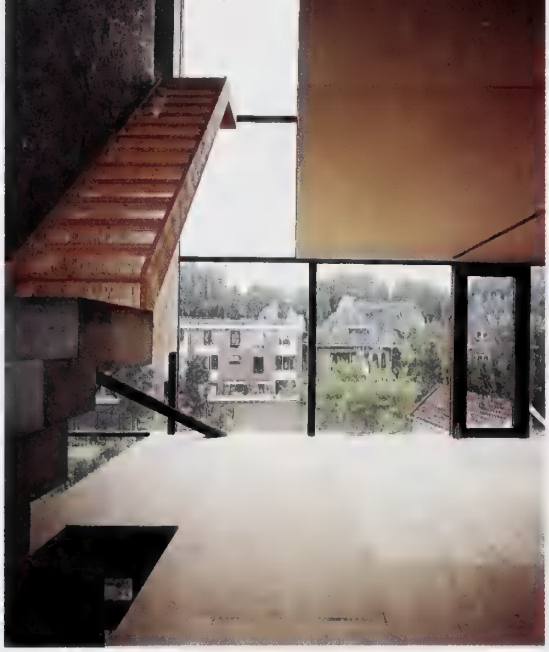
One of Holland's tried-and-true housing types is called *twee-onder-een-kap*, two houses under one roof. For a two-family home in the city of Utrecht, two architects, Bjarne Mastenbroek of Architectengroep and Winy Maas of MVRDV, collaborated on an ingenious variation on this theme. Called Villa KBWW, the house is an assemblage of solids and voids constructed of glass and steel.

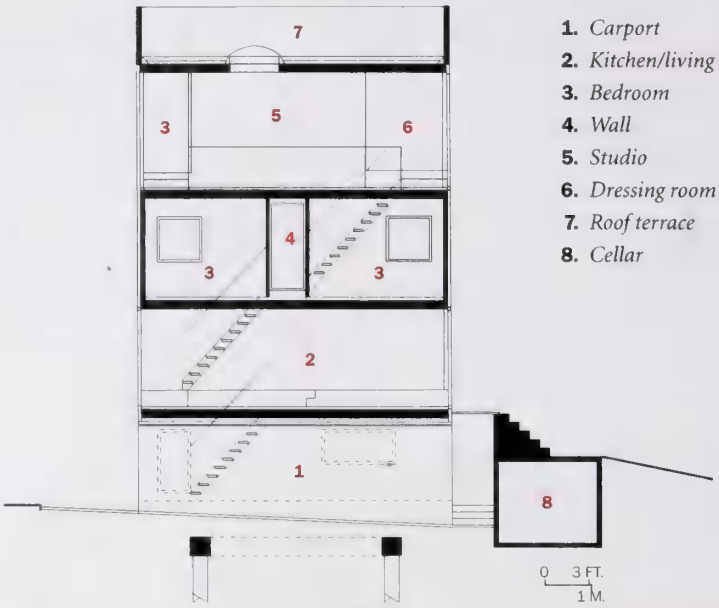
The choice of steel was dictated by the design, in which only one wall goes in a straight line to the ground. To avoid placing columns in the living spaces, steel beams are concealed in the floors, walls, and sections of the facade to provide rigidity. Added advantages were lower costs, as it was possible to use prefab steel elements, and greater transparency where desired.

Located in a desirable residential neighborhood on the lovely 19th-century Wilhelmina Park, this urban villa is one of a number of new houses that contrast with their older ornamented brick neighbors. It is the only one with a facade consisting largely of glass.

The project started in 1994, when family WW (the clients' initials form the name of the house) bought the lot, only to discover that







1. *Carport*
2. *Kitchen/living room*
3. *Bedroom*
4. *Wall*
5. *Studio*
6. *Dressing room*
7. *Roof terrace*
8. *Cellar*

their budget was insufficient. The KBs responded to their advertisement in the newspaper for a co-client. Thrown together purely by chance, the two families turned out to have divergent budgets and programs. The WWs had a traditional house in mind, whereas the KBs wanted an interesting space that interacted with the outdoors.

The KB family chose Bjarne Mastenbroek as the architect; it was Mastenbroek's idea to collaborate with Winy Maas of MVRDV. Says Mastenbroek, "Winy Maas and I had agreed long ago that someday we would design a house together. This house was a terrific first collaboration because it presented a very complex design challenge." Drawings of the floor plan show how the design began (with a simple perpendicular wall between the two halves), evolved, and where it ended (looking like something resembling a Rubik's Cube). Mastenbroek says, "We didn't so much design the elements themselves as the areas between the elements. That way you can create interesting spaces that escape from the predictable solutions you so often find in Dutch housing." The resulting assemblage of solid and void, metal and glass, provides each family with their ideal home.

The spatial complexity of the house was matched by the process of getting it built. The two families were at loggerheads more than once, the builder went bankrupt during construction, and the municipal fire regulations created almost insurmountable difficulties. It is a tribute to all that not only did the house indeed get built, but also that the clients are happy and that their children play together in the garden, designed by KB, which both families use jointly. ■

Tracy Metz lives in Amsterdam and is the features editor for NRC Handelsblad, *a Dutch newspaper. She writes for* RECORD *about European architecture.*

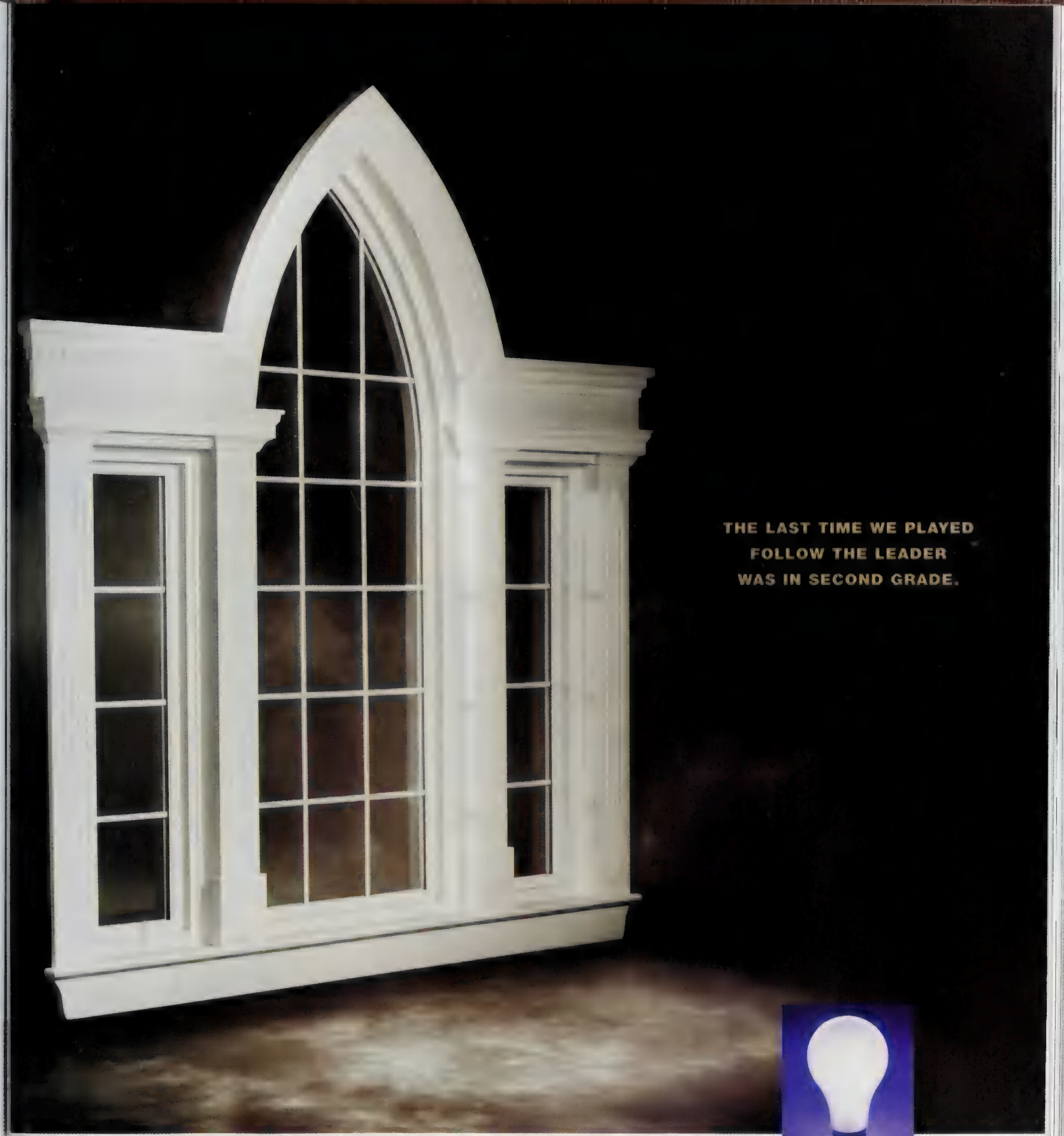
Project: *Villa KBWW*
Location: *Utrecht, the Netherlands*
Architect: *De Architectengroep—Bjarne Mastenbroek with Floor Arons and Michiel Raaphorst, and MVRDV—Winy Maas, Jacov van Rijs, Nathalie de Vries, Mike Booth, and Joost Glissenaar*
Engineers: *ABT Velp (structural)*
Contractor: *Tiggelman bv*

Sources
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Glass: *Rapid Pane*
Electrical: *SMEG*
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WWW For more information on the people and products involved in this project, go to Projects at www.architecturalrecord.com



In order to fulfill the divergent needs of two families, the architects used metal and glass to create a complex assemblage of solids and voids.



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On the edge of Chicago's notorious Cabrini Green, Frederick **Phillips** builds a graceful tower for himself

By William Weathersby, Jr.

While Mies's gleaming Lake Shore Drive apartment towers are the pinnacle of Chicago's residential architecture heritage, the Cabrini Green complex on the South Side represents a darker legacy: the city's abject failure in the realm of public housing. Completed in the 1960s to house up to 20,000 low-income residents, the cluster of high- and low-rise buildings now is being demolished and its tenants scattered, victims of the tract's crime and urban blight. While the city proceeds with public housing redevelopment plans (see www.thecha.org), one pioneering homesteader is bringing new vitality to this transitional neighborhood on his own time and dime.

In the shadow of Cabrini Green, architect Frederick Phillips has defied local skeptics to build a small, graceful tower as his own home. Set on a tiny triangular plot just northeast of a traffic artery that skirts the district and next to a 19th-century tenement, his low-maintenance, aesthetically high-impact building with loftlike spaces flouts the local masonry conventions of heavy brick and mortar. Instead, two sheet-metal-clad stories seem to float in midair—boxes with a silvery sheen slipped between open spaces atop and below.

The site was said to be unbuildable, but the architect sandwiched two enclosed floors between a carport and roof terrace.

"Zoning setback requirements allowed only a constricted footprint," Phillips says. "This lot is really just a leftover scrap of the urban fabric that was once destined to be forgotten. I've always been drawn to finding the architectural possibilities buried within such remnants."

Phillips is no stranger to carving diamonds in a rough neighborhood. A home he built nearby for a physician was published as a Record House six years ago [RECORD, APRIL 1995]. His own previous house two blocks away appeared in RECORD in April 1990. With his new house, Phillips was inspired to build up rather than out for sweeping views of Chicago's skyscraper cityscape. The 1,200-square-foot house is vertically oriented, with a principal living space perched on the terrace. "The site ruled out a backyard," Phillips says, "and the elevated terrace creates a secure area for relaxing and entertaining." Living, dining, and

Contributing editor William Weathersby, Jr., lives in Westport, Conn. He grew up in a suburb on the North Shore of Chicago.

Project: *Phillips House, Chicago*
Architect: *Frederick Phillips and Associates—Frederick Phillips, FAIA, principal; Vincent Rigg, Casimir Kujawa, project team*
Structural engineer: *Thornton-Tomasetti Engineers—Joe Burns*
Landscape architect: *Peter Lindsay Schaudt Landscape Architecture*
Construction: *Ladner Construction*





Supporting the steel frame, the concrete stair tower allows the living spaces to appear suspended. The fire-engine-red skeleton of a spiral staircase is set off against the planes of polished concrete block and wavy steel.





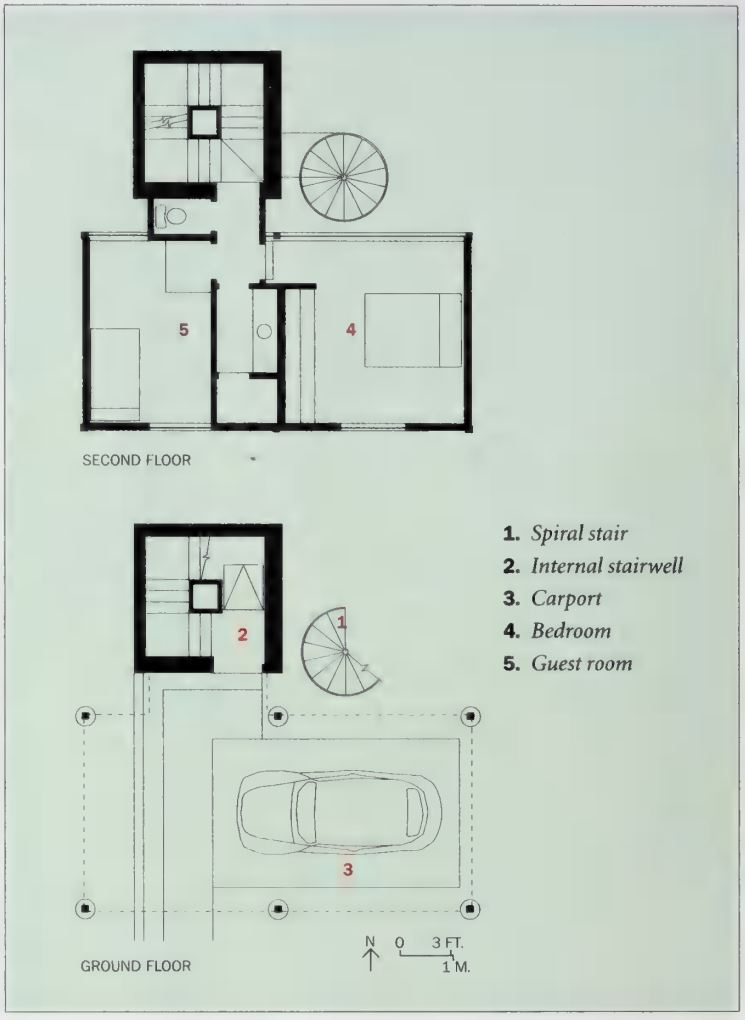
kitchen areas occupy the third level. Two bedrooms are located on the second floor.

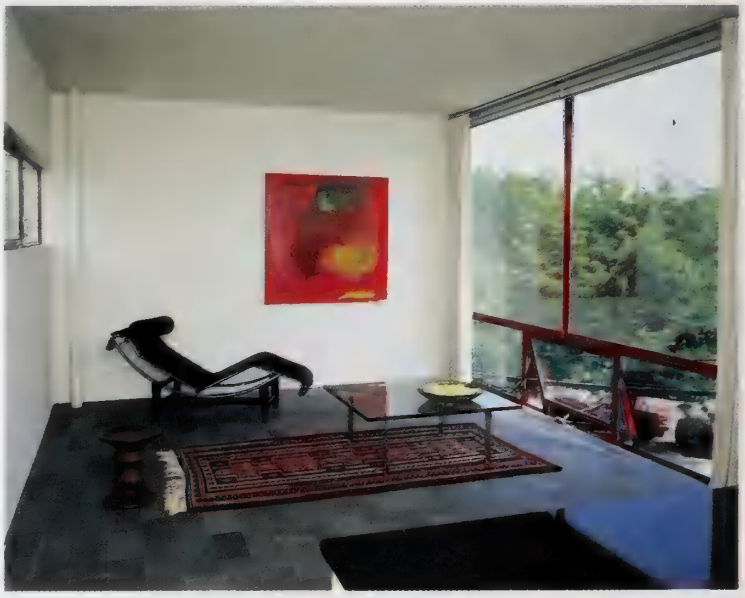
The Phillips House is an essay in structural engineering. Building codes mandated a steel frame because of the house's height and proportions. Columns are 4-by-4-foot structural tubes wrapped in 1-inch fireproofing beneath an outer steel shell. The inward-facing flanges of the beams sandwich the required fire-rated ⅝-inch drywall. Since the structural component of each column is only a 4-inch-diameter tube, an adjacent concrete-block tower, which houses an interior staircase accessing all floors, provides most of the racking support for lateral wind loads. "In effect, the core is pulled away from the building and placed to the side," Phillips says. "The concrete tower minimizes the steel frame, giving the floors a feeling of suspension." A spiral staircase rises along the north elevation where the metal and concrete towers meet, like treads ascending a treehouse. Painted fire-engine red, it is the vertical exclamation point to red metal-framed windows punctuating the corrugated steel siding.

Inside, Phillips indulged his passion for spare spaces flooded with light. The height of windows on the second and third floors keeps views unobstructed. Streamlined details embrace tactile materials. New England slate floors are laid in a running bond pattern "for a less clinical appearance," Phillips says. Retractable, translucent mesh terrace awnings provide sun protection while allowing a bird's-eye view of clouds rolling by. And there is no need to shovel snow off the terrace in winter: Here along Lake Michigan, the city's infamous winds make the lofty plane "self-cleaning." ■

Sources
Concrete block: *Trenwyth Industries*
Windows: *Hopes*
Sheet metal: *Galvalume by Berridge*
Steel columns: *Firetrol*

WWW For more information on the people and products involved in this project, go to Projects at www.architecturalrecord.com





The living, dining, and kitchen areas occupy the third level (top left, and above), while two bedrooms share the second floor (plan). The carport (plan) alleviates the need for street parking or digging out of snowdrifts. Hydronic heating is set in concrete beneath slate.

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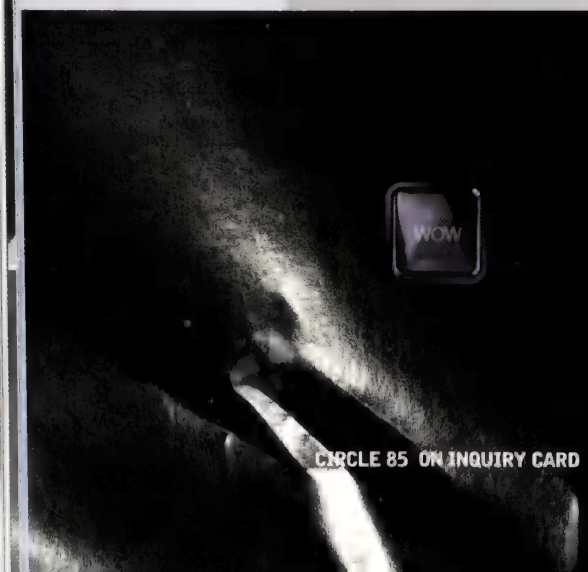
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CIRCLE 85 ON INQUIRY CARD

With a dose of humor, Neil Deputy designs an inexpensive, prefabricated home office

By Elizabeth Harrison Kubany

Charlottesville, Virginia, is encumbered by the Jeffersonian tradition," states Miami-based architect Neal R. Deputy. Certainly, this university town has become inextricably linked with Thomas Jefferson's romantic neo-Classicism. With red brick, carved wood moldings, and seamed metal roofs, Monticello has influenced much of the architecture built in Charlottesville during the past 150 years. But Deputy sees a different city: "Charlottesville grew up around the railroads. Its rural and industrial past is often overlooked," he says.

When Deputy's client hired him to design a home office, it was the semi-industrial character of the site that inspired him. The stucco house is located on a corner lot in a 1920s and '30s residential neighborhood. An auto dealership, metal shops, and a bottling plant surround the area's houses.

Formally, "The Yardbird," as Deputy titled his design, couldn't be simpler. A 12-by-20-foot room elevated on pilotis, The Yardbird provides 240 square feet of custom workspace for this client. But Deputy envisions the unit in other places as well. The structure is almost entirely prefabricated and arrives on the site ready to be assembled. Deputy anticipates selling The Yardbird in a kit for use as a toolshed, outbuilding, or garden folly.

Deputy clearly brings a sense of humor to his work. He has done numerous prototypes for The Steel Zoo, using Quonset huts, grain silos, shipping containers, and tollbooths in various combinations to create customizable low-cost housing. And his buildings inspire wonder in others. Shortly after The Yardbird was finished, he heard a child ask his father, "How do they get the lawn mowers up there?" ■



Project: *The Yardbird, Charlottesville, Va.*
Owner: *Carl E. Owens III*
Architect: *Neal R. Deputy Architect, Inc.—Neal R. Deputy, principal; Gaither Pratt, associate*

Sources
Metal siding: *Fabral Co.*
Windows: *Traco*
Spiral staircase: *The Iron Shop*
Lighting: *Stonco, Hubble, Leviton*

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Deputy calls the building, with its steel windows, corrugated metal siding, and exposed steel structure, "an alternate classicism for the city of Charlottesville."



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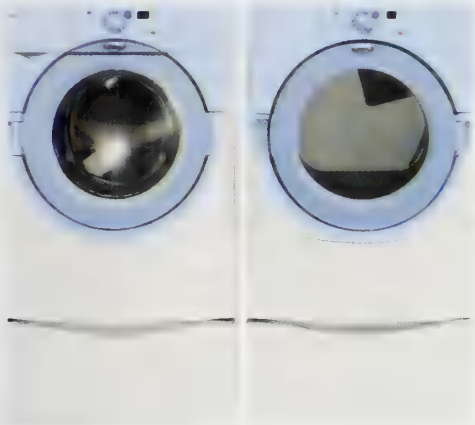
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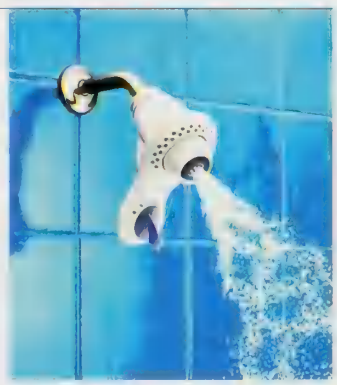
Residential Products

► Smart laundry



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► Spinning shower



Moen's Revolution massaging showerhead takes ordinary water, spins each drop, and then twirls the entire stream. The increased speed in movement of the water drops results in a perception of warmer water, higher flow, and higher pressure. The control is located at the bottom of the showerhead, out of the main stream of water. 800/BUY-MOEN. Moen, North Olmstead, Ohio. **CIRCLE 203**



◄ Living on the grid

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▲ Basil and oregano

Della Casa offers custom-designed European-style kitchens to luxury condominium developers, builders, and homeowners. Their kitchens feature standard amenities such as cabinets with matching wood inside and out, cutlery dividers, a special recycling bin drawer, pull-out pantries, spice drawers, and a canister built into the countertop for an herb garden (shown above). 954/538-1680. Della Casa LLC, Miramar, Fl. **CIRCLE 202**

▼ Need a lift?

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▲ For the vertically impaired

Alaco Ladder Company recently added new finishes and options to its wood rolling ladder. The ladder is constructed in a straight or bent design with tapered side rails and beveled steps assembled with steel rods and plated steel braces. Ladders come in a variety of natural woods and a large selection of track and hardware options, and there is a model that is completely removable. The rolling ladder is ideal for a library or study or for reaching storage and display shelves that can be installed to cover a single wall or an entire room for any residential or commercial application. 888/310-7040. Alaco Ladder Company, Chino, Calif. **CIRCLE 205**

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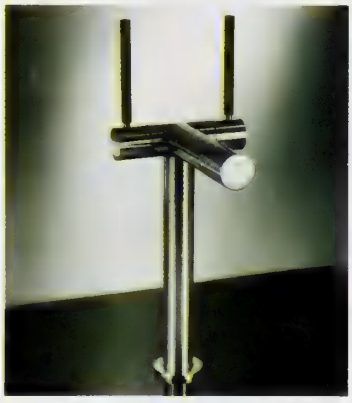
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Residential Products

▼ Sculptural stainless

Christo Lefroy Brooks has introduced a range of 20 sleek minimal fittings and fixtures called the XO Collection. All stainless-steel hardware is handcrafted in England through the lost wax technique employed in sculpture. The stainless-steel fittings and accessories are available in two main finishes—brushed and glassblast, a finish created by blasting the stainless-steel surface with tiny particles of glass. 212/226-2242. Lefroy Brooks USA, New York City. **CIRCLE 207**





▲ Getting toasty

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▲ Coffee table lawn

The Oasis Cocktail table from Ted Boerner took shape in 1997 when a client requested a space to display small treasures. A monumental slab on rounded, African-inspired legs offers a central copper trough with a removable glass insert top that stores underneath when not in use. In the new version, the table is surfaced in rotary-peeled bamboo veneer, and the bamboo's knuckles and other imperfections are retained, adding to the effect. The table is available square, rectangular, or round. Standard woods include hard white maple, cherry, rift white oak, mahogany, ash, and vertical grain fir. 415/487-0110. Ted Boerner Inc., San Francisco. **CIRCLE 206**



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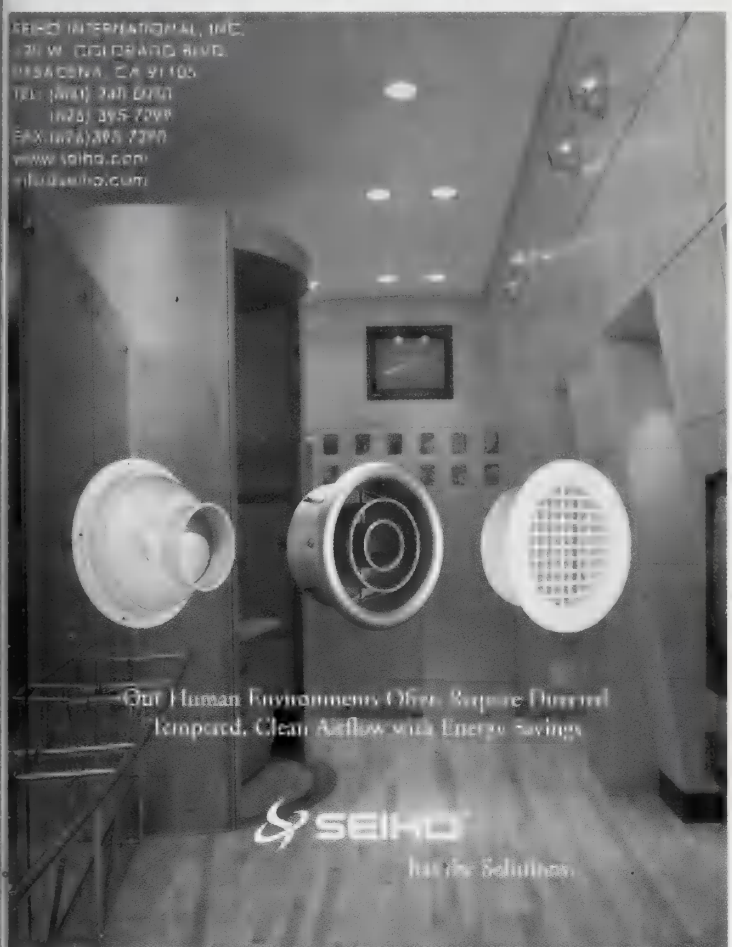


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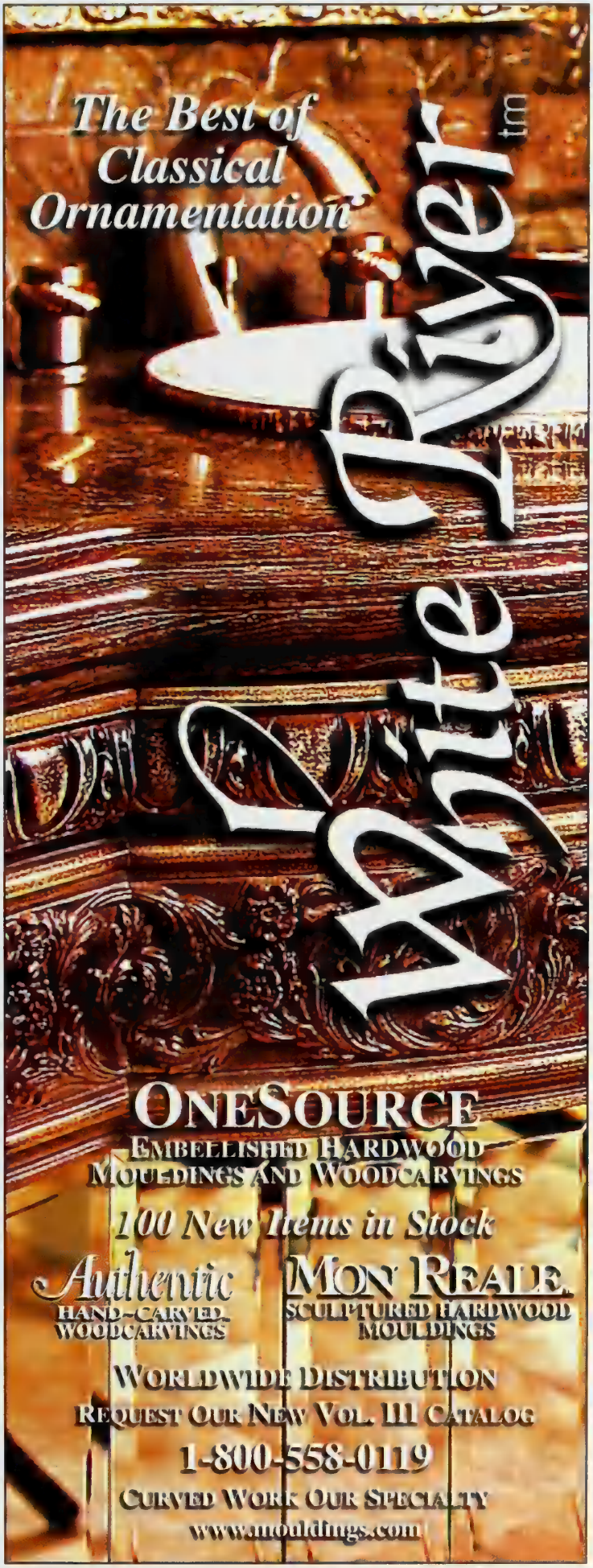
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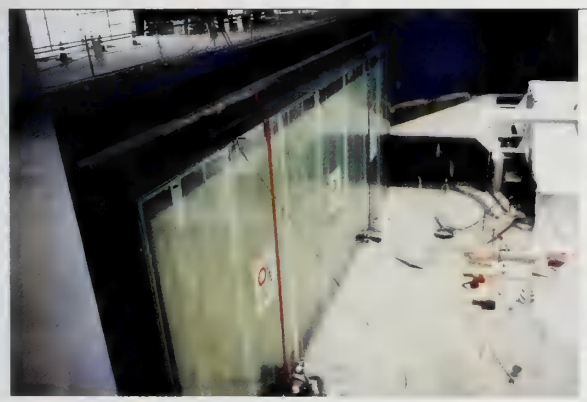


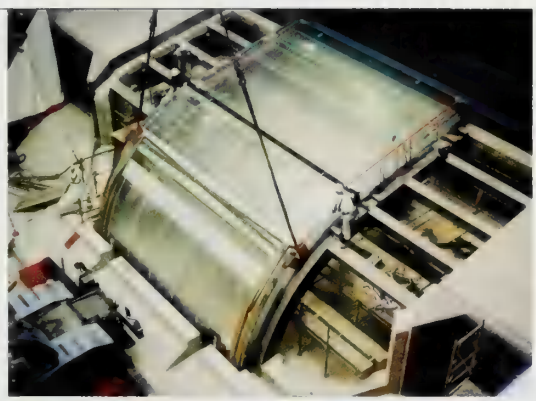


Copper ellipse soaking bath (far left). Stainless-steel soaking bath (near left).

Sculptural copper and stainless-steel soaking baths

Diamond Spas offers a line of plumbing fixtures fabricated from stainless steel and copper. A handmade, full-skirted copper ellipse soaking bath is one of their newest offerings. The bathing well and top ledge have been left raw to patinate naturally over time. Whirlpool, self-rimming, undermount, or custom designs are also available. The tub's dimensions are 40 by 72 by 24 inches. Diamond Spas also introduces a self-standing, stainless-steel Japanese soaking bath. The bath is constructed by hand, featuring clean weld seams, a bench seat, and a bowed top ledge. Whirlpool, drop-in, self-rimming, and custom applications are also available. The stainless bath's dimensions are 42 by 42 by 34 inches. 800/951-7727. Diamond Spas, Inc., Broomfield, Colo. CIRCLE 209





Japanese aquarium to display world's largest acrylic panel

Nippura Co., Ltd., has just completed the waterproofing and acrylic work for the main tank of the new Okinawa Aquarium, which will open to the public in the fall of 2002. The main tank holds two million gallons of salt water and will showcase five full-size whale sharks along with other marine species.

Designers sought a view window big enough to allow visitors to see numerous whale sharks swimming in tandem without any interruption. The result is the largest acrylic panel ever constructed, measuring 74 feet wide by 25 feet high by 2 feet thick, and weighing 133 metric tons. The window is made possible by Nippura's on-site vertical bonding and annealing technology, which allows architects to design view windows in sizes that would have been impossible to move with the crane-capacity restrictions of the typical construction site. The main tank also features the largest acrylic dome room ever designed. The dome room is composed of seven separate acrylic panels that are 46 feet long by 28 feet wide by 10 feet high. The dome consists of over 50 tons of acrylic. The curved middle section of the dome has an arc length of 32 by 15 feet. 704/523-4384. U.S. Nippura, Inc., Charlotte, N.C. CIRCLE 210

Freestanding shade structures

Birdair has introduced a new line of preassembled, freestanding shade structures. Models are fully assembled and pretensioned, ready for on-site delivery and installation. Ideal applications for these closeable structures include: outdoor dining cafés, pool patios, pedestrian or valet shading, and many other landscape applications. The wind-rated structures come in a variety of shapes and sizes, can be linked together for continuous coverage, and can be permanently fixed or mounted for removal and storage. Birdair also has a variety of pre-engineered modular products. These units are non-closeable and typically much greater in size than the pre-assembled units described earlier. The styles range from 13 to 40 feet wide and individual units can be linked together. 800/622-2246. Birdair, Amherst, N.Y. CIRCLE 211

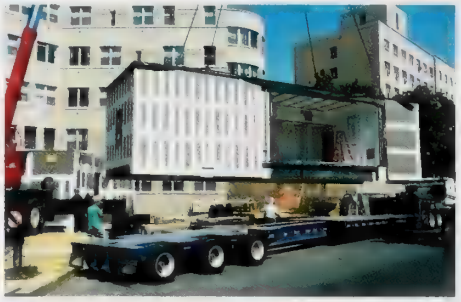


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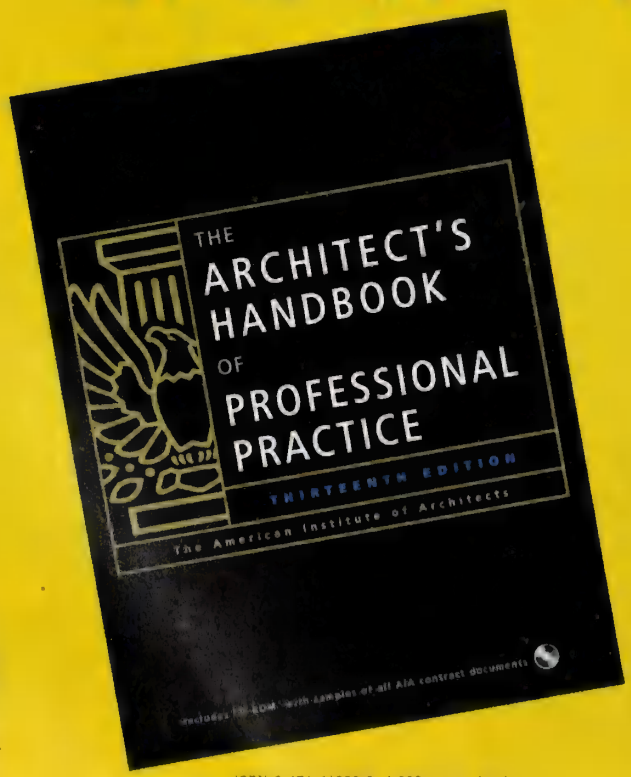
► Building systems



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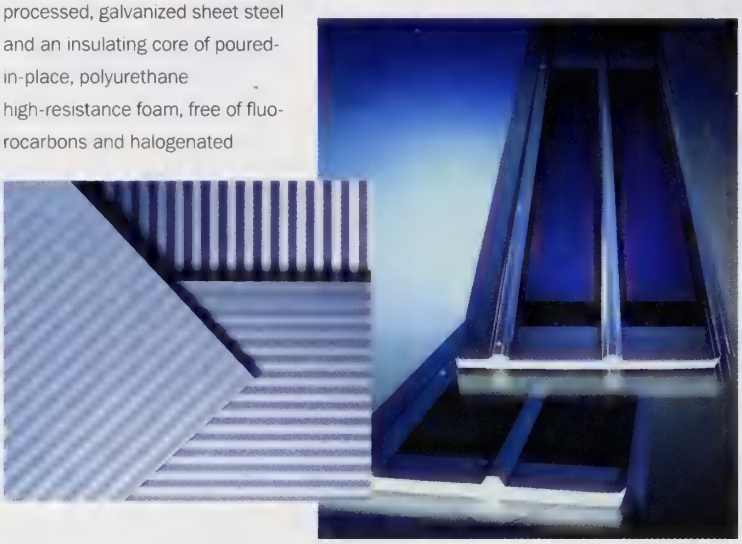


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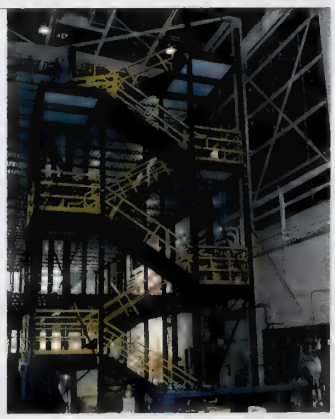
▼ Insulated wall/roof panels
Thyssen Thermowand Design 100 (below left) is Thyssen's newest, thickest model of streamlined, insulated metal wall panels with concealed fasteners. The factory-foamed panels are four inches thick, with skins of continuously processed, galvanized sheet steel and an insulating core of poured-in-place, polyurethane high-resistance foam, free of fluorocarbons and halogenated fluorocarbons. Thyssen has also introduced an insulated version of its Thyssen Solartec metal roof panels with integrated photovoltaic components for solar energy applications (below right). 856/863-2666. New Century Building Systems, Glassboro, N.J. **CIRCLE 215**





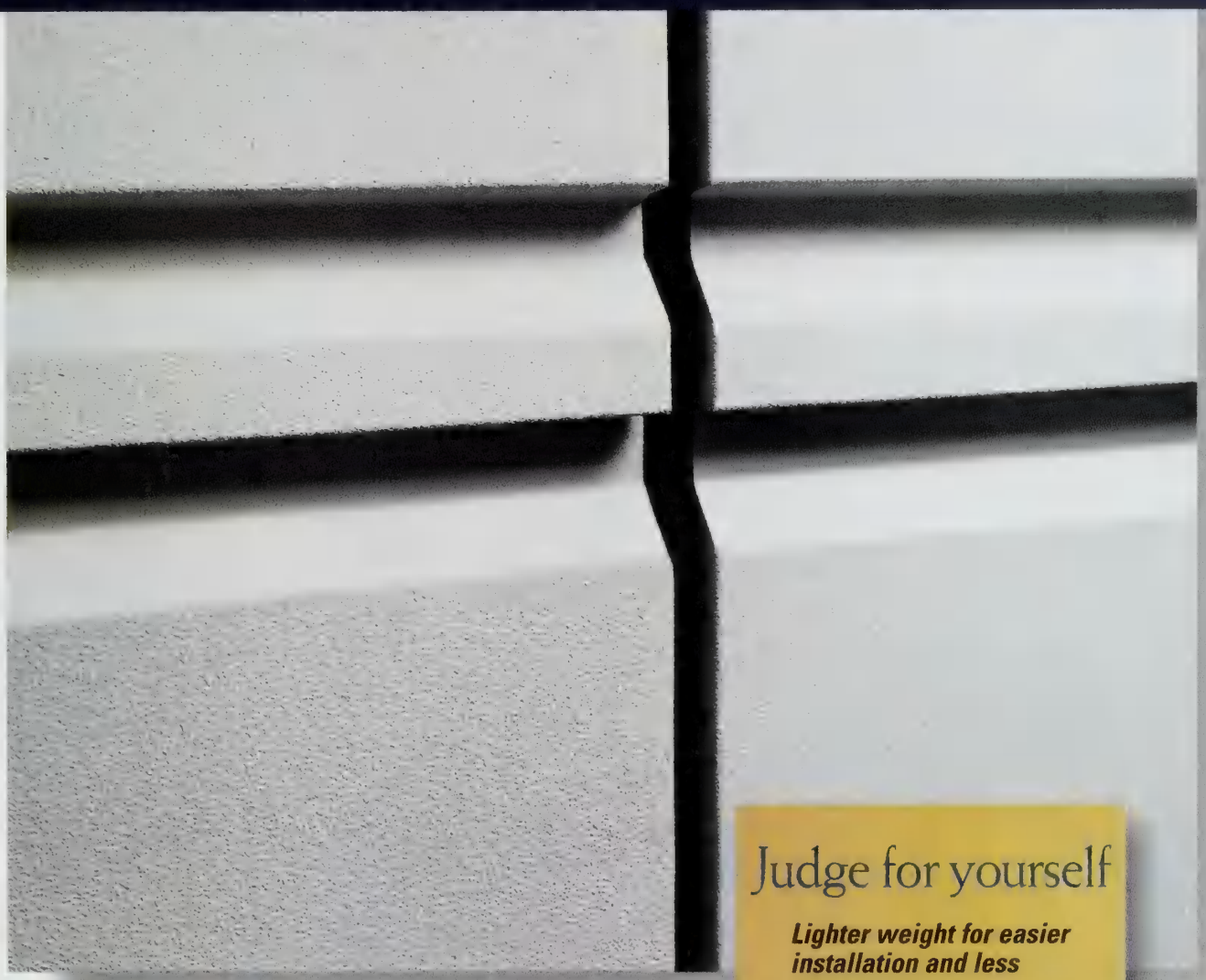
▲ Keeping cool by the pool
OpenAire's retractable pool enclosures and skylights retract at the touch of a button, opening up to 50 percent of the roof area. Thermally broken aluminum framing systems provide an effective moisture barrier and can withstand the harsh environment of indoor pools. Enclosures and skylights can span large distances up to 100 feet and are suited to new or existing construction. 262/675-6966. OpenAire America, Cedarburg, Wis. **CIRCLE 217**

► Towering structure
Towering 40 feet from the plant floor, the PortaFab structure shown has six platform levels with access provided by pre-engineered stair assemblies. The application-driven design was developed by PortaFab's in-house professional staff to meet the specific space requirements and characteristics of the building. The structure is designed to meet the 1997 UBC building code. 800/325-3781. PortaFab Corporation, Chesterfield, Mo. **CIRCLE 216**



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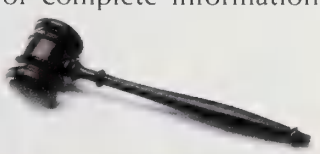
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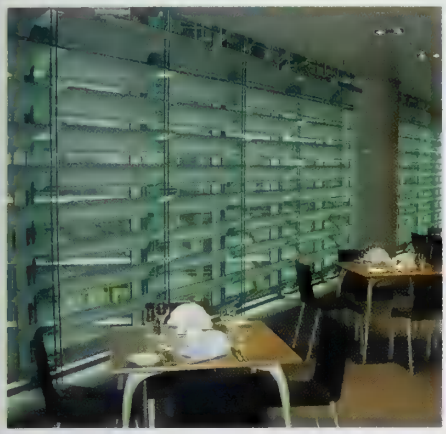
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Product Briefs



shading systems, Levolux has completed major projects in Europe, Canada, Hong Kong, and the U.S. With the increasing significance of energy issues in the U.S., Levolux encourages American architects to look to its products as a way of controlling heat gain within buildings while moving away from the traditional route of air conditioning. Three key product groupings include the Skyvane rack arm system, external shading systems, and specialty venetian blinds. 44/020-8863-9111. Levolux, Middlesex, England. CIRCLE 218

▲ Solar shading solutions

With more than 160 years experience in the design, project management, installation, and maintenance of solar

► An intelligent direction

Ariadne is a complete way-finding system for hotels, conference centers, corporate training centers, and other large meeting facilities. When tied in with an existing booking system, Ariadne automatically updates time, activity, and room assignments. A 40-inch plasma screen is designed as the main welcome board at the entrance of the building, with subsidiary 15- , 10- , and 6-inch screens networked throughout the facility as required. 214/352-9140. ASI Sign Systems, Inc., Dallas. CIRCLE 219



▼ Pan-Asian influence

Newari Gallery offers custom architectural elements, interiors, structures, adornments, and frescoes inspired by the ancient designs of countries such as Nepal, India, Thailand, and Bali. Newari provides design support in the creation of complete environments in the Pan-Asian vernacular for home, business, resort, and garden. Each wood, terra-cotta, and stone masterwork—from pergolas to window screens—is handcrafted in Nepal by artisans practicing the same techniques used for the past 1,000 years. 510/486-8778. Newari Gallery, Berkeley, Calif. CIRCLE 221

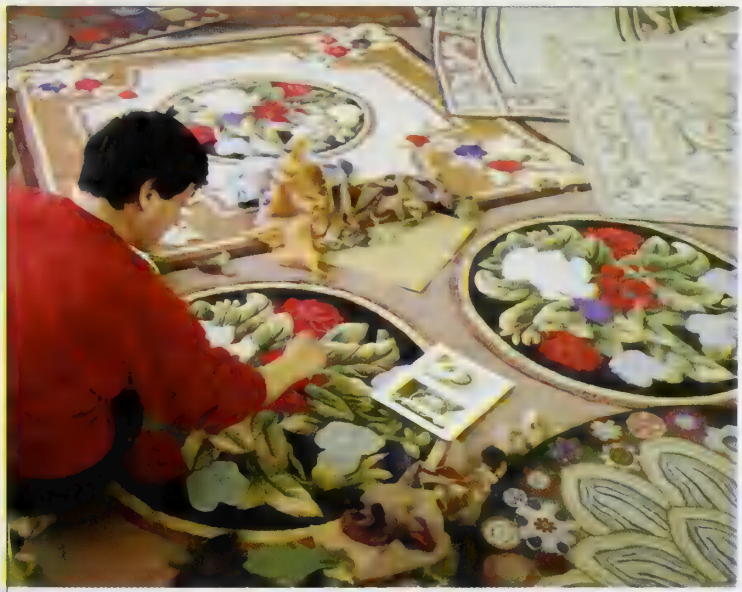






Product of the Month
Riverstone

Riverstone is a new material developed in Italy of translucent resin and marble pebbles that is now available in the United States. Suitable for both residential and commercial applications, Riverstone comes in six colors: natural, blue, green, aquamarine, pink, and yellow (shown above). The marble granules come in three sizes, small (10 millimeters), medium (14 millimeters), and large (22 millimeters). Riverstone can be cut and molded using normal marble machines. Ceiling border, frame, tile, flooring border, and wall-slab versions of Riverstone are available. It is not recommended that the product be directly exposed to the sun, since it may change the color of the resin. The surface is completely devoid of paints and is treated with a water-repellent wax protection. To maintain the surface protection and the original brightness, occasional treatment with marble wax is suggested. 212/727-9331. Artistic Tile, New York City. CIRCLE 220



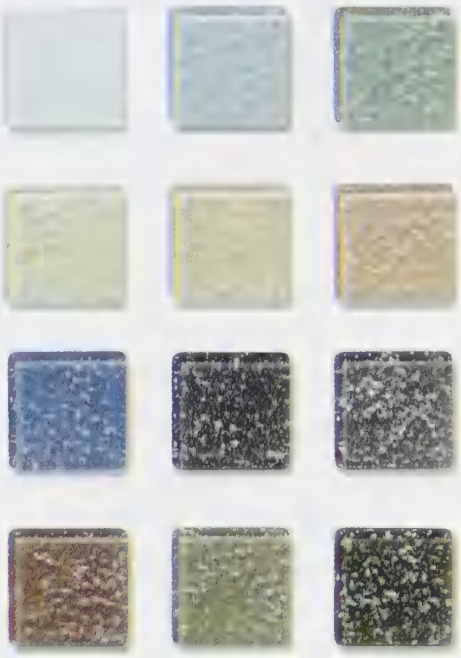
▲ Endless color palette

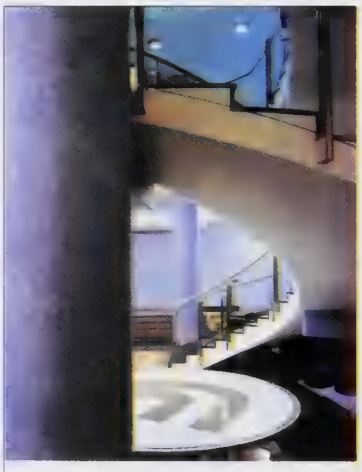
Lamontage is a patented needle-punching method of rug construction created by Liora Manné. Hundreds of colors of felt can be blended to make hues for the planned rug design—whether it's traditional or modern. Next, the fabric is tacked down with a handheld tool that houses about a hundred barbed needles that move at a high speed to interlock the fibers. The work is then finished by a machine containing thousands of barbed needles that permanently laminate and strengthen the rug. 212/989-2732. Lamontage, New York City. CIRCLE 222

Product Briefs

▼ Versatile glass styles

Interstyle offers a complete line of glass tile in a full range of colors. The Aquarius line of rustic blocks of individually handcrafted glass measure about 4 by 4 by ½ inches. Aquarius is available in 20 combinations of colored gems suspended in clear glass. River Crystals are chunks of handcrafted and hand-colored glass, assembled into mesh-mounted mosaics. River Crystals are available in 10 colors and two sizes. Cobblestones is a glass mosaic series of 12 color groups, and Glassplash glass tiles feature a mottled texture. 604/421-7229. Interstyle Ceramic and Glass, Ltd., Burnaby, British Columbia. **CIRCLE 241**





▲ Fresh frescoes

Manufactured in Trieste, Italy, Rialto plaster finishes are historically accurate and have earned approval by the Italian Commission on Environmental and Cultural Sites Conservation and Restoration. The finishes include materials such as seasoned slaked lime, selected resins, marble, granite, quartz, colored earth, and natural pigments. Most can be custom blended to match specific requirements. 714/777-4401. Vero, Anaheim, Calif. **CIRCLE 242**

▼ Pesce carpets

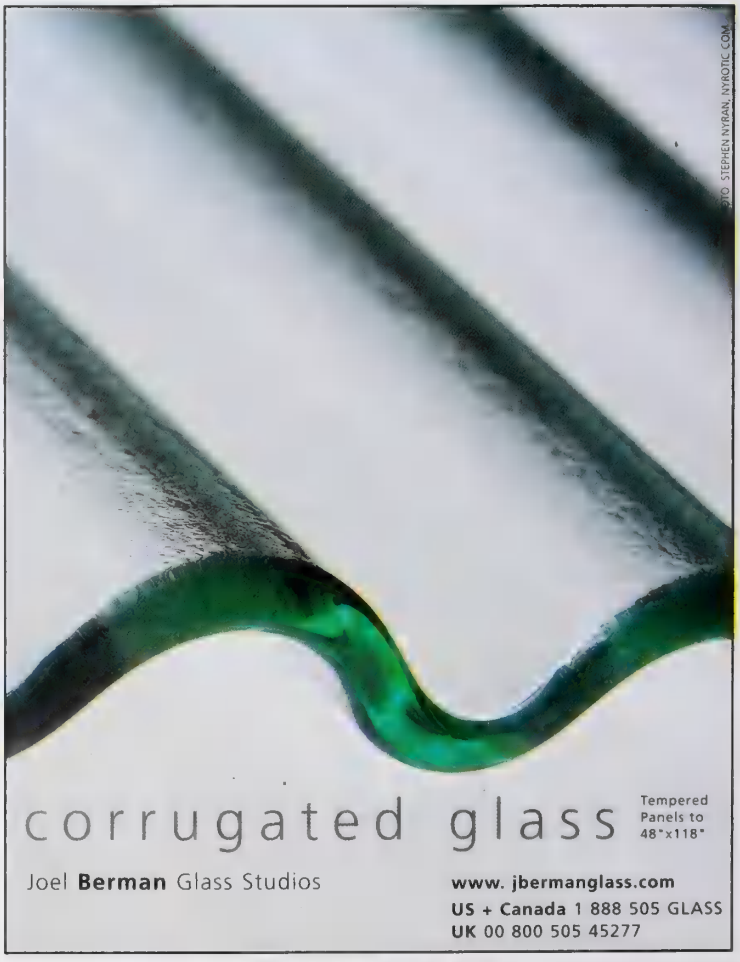
This November, Milan's Galleria Nilufar will open an exhibit of three carpets in silicone, created exclusively by Gaetano Pesce for the gallery. Pesce has developed a new technique in which designs are created through the articulation of a multitude of variously colored drops of silicone. The result is an appearance reminiscent of the pixels of digital television or computer monitors. 39/02-780193. Nilufar, Milan. **CIRCLE 243**



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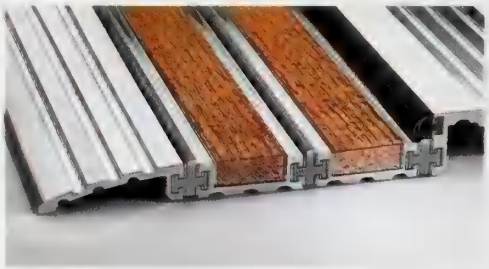
▲ Flooring fun and games

The Fun and Games collection includes four coordinating styles offered in eight colorways ranging from slightly retro combinations to ethnically inspired neutrals. Fun and Games includes Square Pegs, a style that overlays blocks of color over a contrasting zigzag stripe; Evasive Action, available in quarter-turn tiles; Round Holes, a product that uses circular elements of color over a wide striped field; and the coordinating Line-Up. 706/259-9711. C&A Floorcoverings, Dalton, Ga. **CIRCLE 223**

► Reclaiming the past

All AsiaRain jungle hardwood flooring is certifiably reclaimed, rediscovered, or recycled tropical hardwood. AsiaRain "Jungle Mix" floors are 100 percent rediscovered and reclaimed "used wood" from old railroad cross ties, telegraph poles, and bridge pilings out of Southeast Asia. 707/822-6200. AsiaRain Jungle Hardwoods, McCloud, Calif. **CIRCLE 224**





▲ Thermal break door saddles

Zero offers a line of energy-efficient door saddles using unfinished oak inserts as thermal breaks. Used in combination with PVC breaks, the wood inserts are suitable for both high-end commercial and residential use. The look can be customized by staining and coating to finish the exposed surfaces, and aluminum inserts are available. Zero's thermal breaks are offered in a variety of wheelchair-accessible saddles. 800/635-5335. Zero International, Inc., Bronx, N.Y. **CIRCLE 225**

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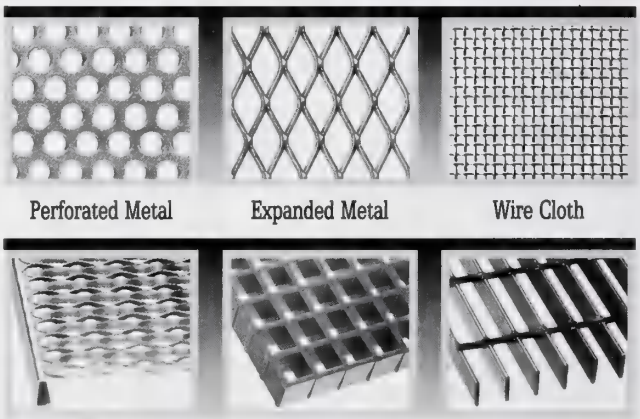
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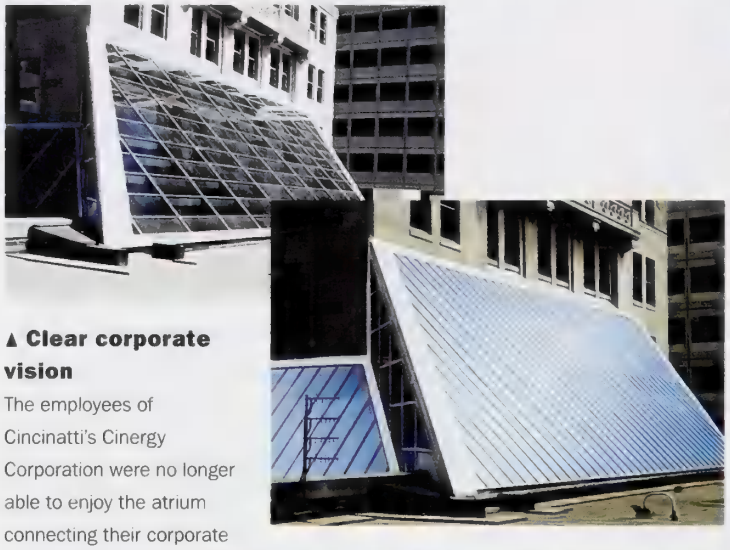
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▲ Clear corporate vision

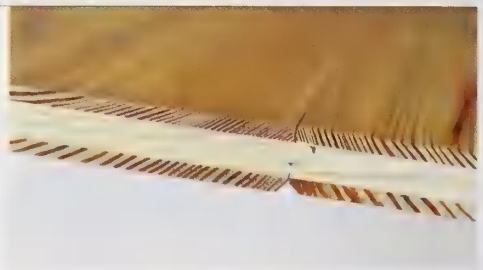
The employees of Cincinatti's Cinergy Corporation were no longer able to enjoy the atrium connecting their corporate headquarters. The atrium (top), which featured 2,300 square feet of sloped, glazed curtainwall, started to leak and the units began to fog up a year or so after the original construction. Harmon developed a plan using a 16-millimeter expandable polycarbonate material to allow for the movement between the buildings (bottom). It cost about 50 percent less than it would to actually reglaze the slope using one-inch insulated units. 763/287-4900. Harmon, Inc., Golden Valley, Minn. **CIRCLE 226**



▲ Green roof system

Weston's GreenGrid System is a new green roof technology that is geared toward the needs and requirements of industrial, commercial, and government facilities. The interlocking GreenGrid modules are composed of recycled plastics and arrive at the work site planted and ready for installation. A recent study by Weston estimates that greening the rooftops of all city buildings in Chicago would result in nearly $100 million of annual energy savings. 312/424-3319. Roy F. Weston, Inc., Chicago. **CIRCLE 227**

► Austrian wide-plank flooring



Admonter Natural Flooring is a three-layered engineered product manufactured in Austria by Stia Holzindustrie GmbH, the industrial arm of the Admont Benedictine monastery located in the small Austrian town of Admont. Stia is a proponent of conservation and plants four trees for each tree harvested. 970/728-0446. Edelweiss Wood Flooring L.L.C., Telluride, Colo. **CIRCLE 228**

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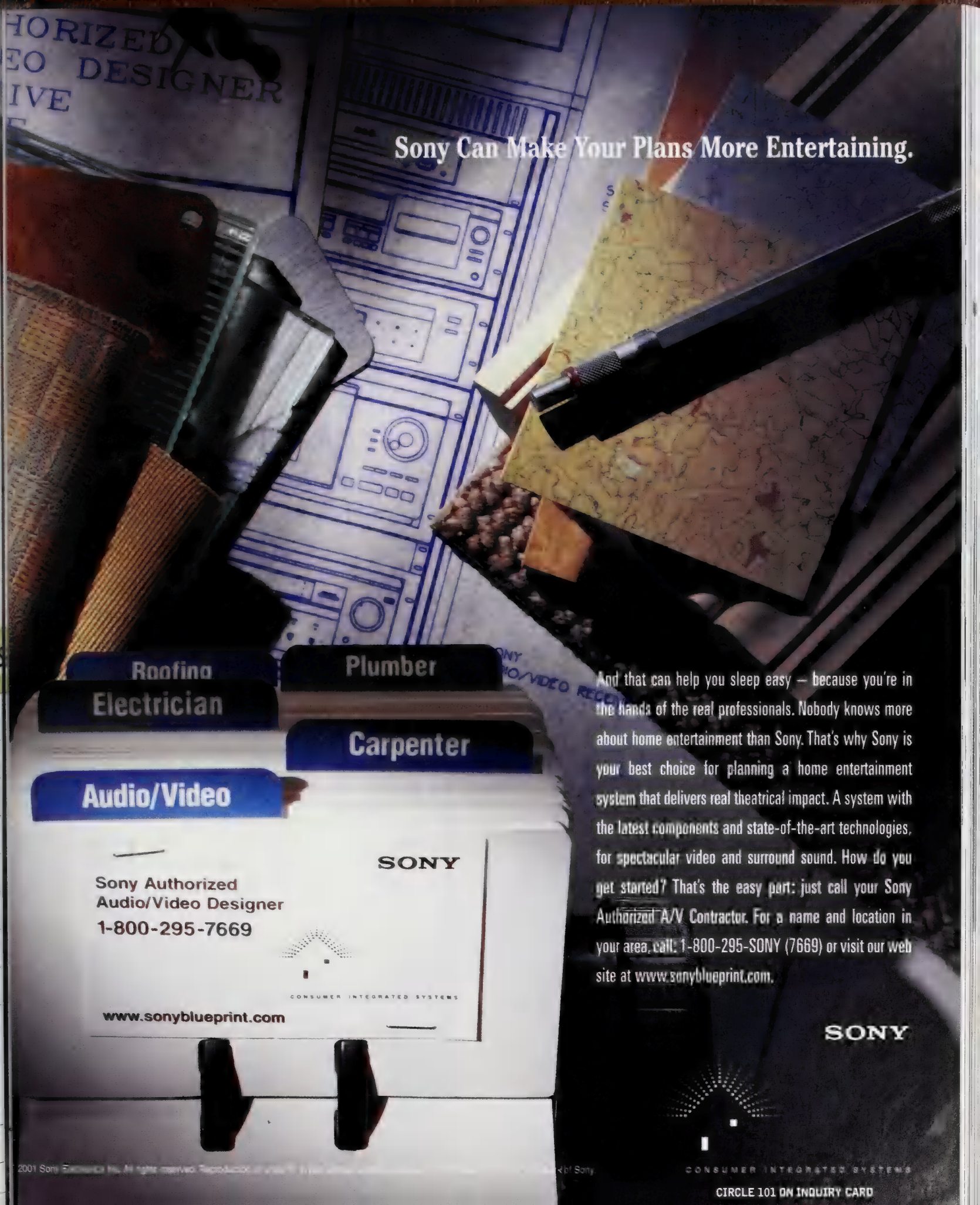
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Product Briefs

► Heavy traction



Noslip is a new commercial and industrial safety flooring system fabricated from the same anti-skid traction material that protects workers and equipment on steep inclines of loading ramps. Noslip consists of galvanized steel traction plates with closely spaced perforation grips that prevent slips and falls on wet, oily, dusty, and icy surfaces. The plates exceed OSHA, ANSI, and U.L. standards. 800/922-6957. Universal Industrial Products Company, Inc., Pioneer, Ohio. **CIRCLE 229**



◄ Economical fabric ductwork

Low-cost fabric ductwork allowed for the creation of long duct runs, reducing the number of air-handling units at the GANCOM plant in Highspire, Pa. Because the fabric duct requires 60 percent less labor to install than metal duct, Briner cut the number to six larger modular air-handling units. 502/493-2210. FabricAir, Inc., Louisville, Ky. **CIRCLE 230**

▼ Family addition

Ultima Vector, the new addition to the Vector family of ceilings, is a mineral fiber panel that features a smooth, fine-textured surface, excellent sound absorption, high light reflectance, and the patented Vector edge detail that creates an upscale, grid-hiding visual with downward access. The two-by-two-foot panels install in a 15/16-inch exposed tee suspension system, which makes them ideal for renovation applications as well as new construction. 877/ARMSTRONG. Armstrong World Industries, Inc., Lancaster, Pa. **CIRCLE 231**



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CIRCLE 232

ADA-compliant bath fixtures

Swan Corporation's new eight-page, full-color guide features a complete review of Swanstone reinforced solid surface, transfer and barrier free showers, and shower floors for assisted-living and/or ADA-accessibility requirement for residential, commercial, or institutional use. 314/231-8148. The Swan Corporation, St. Louis, Mo. **CIRCLE 233**

Lighting catalog CD-ROM

Architectural Landscape Lighting has announced availability of the *ALLscape Catalog 01* on CD-ROM. This interactive version of the catalog runs on Microsoft Internet Explorer and features a highly visual homepage. 714/668-3660. Architectural Landscape Lighting, Santa Ana, Calif.

CIRCLE 234

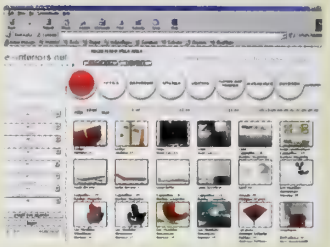
Wall carpet brochure

Eurotex offers free new literature on its Lanai wall carpet. Product description, photographs, installation instructions, and construction and performance specifications are included. 800/523-0731. Eurotex, Philadelphia.

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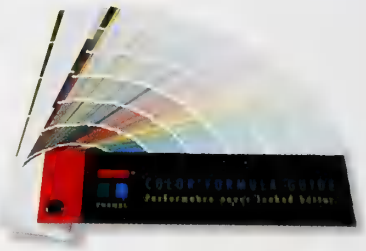


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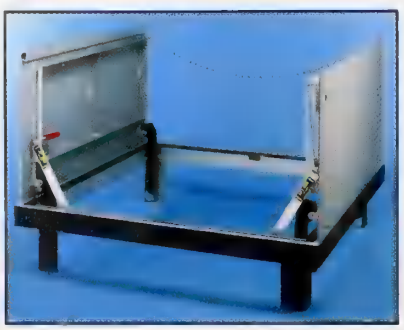
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Door/frame pricing guide

Chicago Metallic has released a new Door/Frame system price guide that depicts many of CMC's standard hinge preps. 800/323-7164. Chicago Metallic, Chicago. **CIRCLE 237**

Outdoor lighting series

Sterner introduces the On-Building Series, which includes 94 products grouped in the following categories: step lighting, recessed lighting, wall lighting, parking/garage lighting, ceiling-mount lighting, cylinder lighting, and arm-mounted lighting fixtures. A new catalogue promotes the line in a user-friendly format and ordering matrix. 800/328-7480. Sterner Lighting Systems Inc., Eden Prairie, Minn. **CIRCLE 238**

Cabinet installations

A new eight-page brochure is available from Westmark Products showcasing commercial cabinet installations in educational, health care, and laboratory facilities. 800/755-3470. Westmark Products, Inc., Tacoma, Wash. **CIRCLE 239**

Roofing and waterproofing

The National Roofing Contractors Association offers the fifth edition of *The NRCA Roofing and Waterproofing Manual*. The manual contains 1,450 pages of low- and steep-slope information about roof-system design and installation. The fifth edition includes new reroofing and architectural sheet-metal sections, revised steep-slope roofing, metal roof systems, and roof-system design guidelines for low-slope membrane roof-system sections. NRCA members receive one complimentary CD-ROM version. The initial hard copy of the manual can be purchased for $125, including shipping and handling, with additional copies for $250. The cost of the manual and CD-ROM is $350 each for nonmembers. 800/323-9545. National Roofing Contractors Association, Rosemount, Ill. **CIRCLE 240**









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Answers to Continuing Education Questions from Page 195

1. AAMA sets the standards for exterior window aluminum coatings performance. The new AAMA 2605 standard more than doubles the old requirements in weathering performance, abrasion resistance and resistance to salt spray and humidity. The older 2603 standard allows slight chalking and fading after 1500 hours of testing. AAMA 2604 sets standards for five years and looked at chalking and color performance after 3000 hours of testing. AAMA 2605 sets standards for 10 years by demanding heightened performance after 4000 hours of lab testing and 10 years of field exposure testing.
2. Impact resistant glass is usually a laminated five-layer sandwich of glass, resin and mylar. Resin is applied to the interior surface of two pressed sheets of float glass. The resin strengthens when cooled and hardens like safety glass. Upon impact, glass pieces adhere to the resin and mylar inner layer and remain in the opening.
3. Large and small missile tests are used to measure impact resistance. For the large missile test, two out of three windows must survive two blows from a nine pound 2 x 4 shot from a cannon at 50 to 52 feet per second. For the small missile test, two out of three windows must survive 30 hits from steel spherical balls weighing 2 grams each propelled at 130 to 132 feet per second.
4. In boot-gasket glazing, a piece of vinyl is wrapped around the glass. This system allows for the glass to be replaced easily. Wet-glazing refers to silicone products used for glazing compounds and sealants. The new sealants give glass a better fit and perform well over long periods of time. Aesthetically, wet-glazing is preferable, however, the glass will be more difficult to replace since the silicone compounds adhere well to the glass.
5. Besides wet-glazing, impact resistance, and coatings on architectural aluminum extrusions, new standards are also seen in sizes of windows, the type of glass in windows, and the way divided lites are made. Windows have been available in standard sizes, normally three, four or five foot tall and standard configurations. Now we are seeing larger sizes used often enough that they have become standard. Windows are available now as operable in large sizes that were only fixed before. Many window manufacturers make windows standard with low E glass. This has come about because low E glass reduces energy consumption year-round. Divided lites are made either from aluminum on the exterior of the glass, or wood muntins on the interior of the window. These allow the window to be a single sealed unit rather than nine or twelve individual units, eliminating much heat transfer.

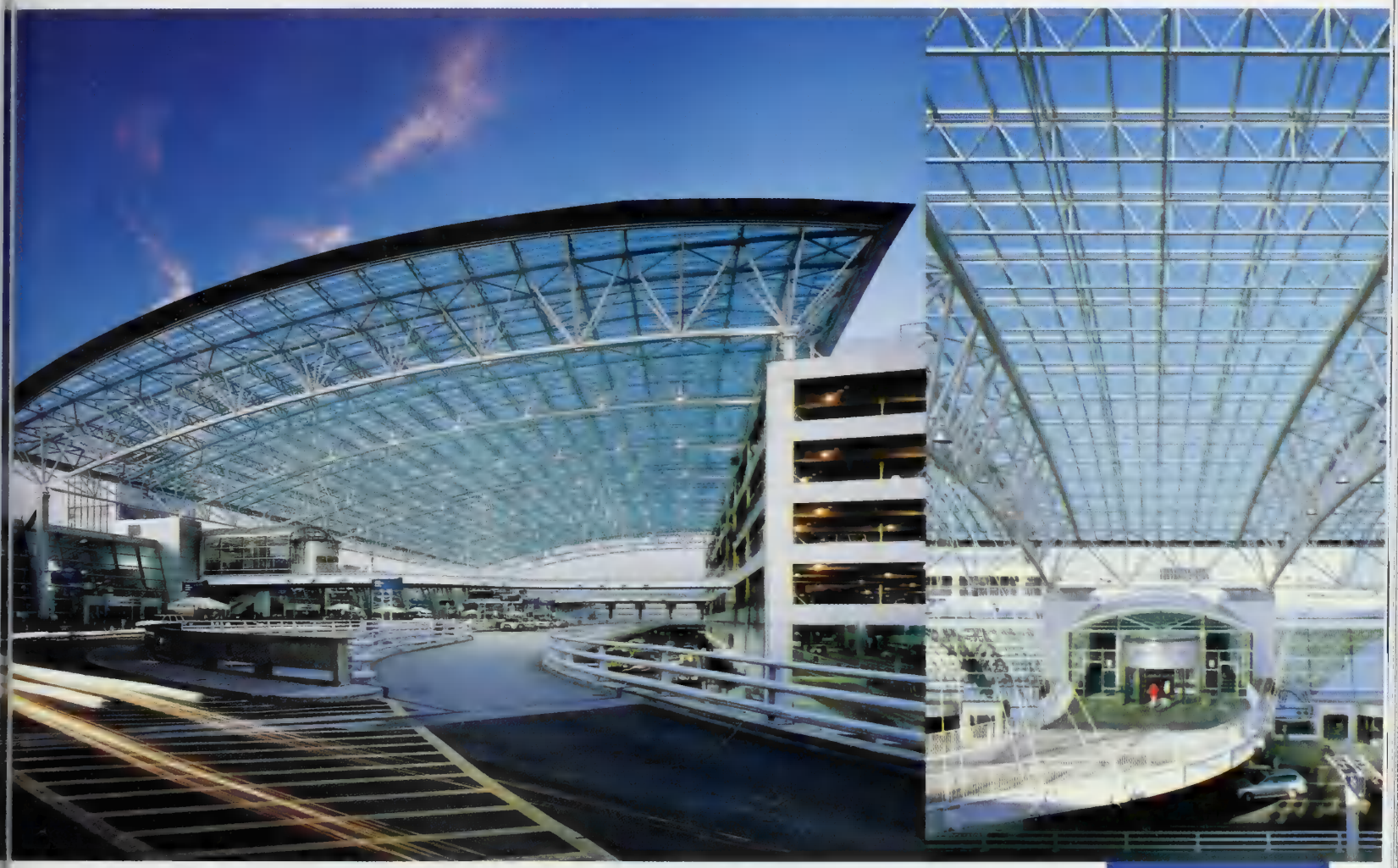
A SPECIFICATION GUIDE FOR EXTERIOR WALL SHEATHINGS

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Answers to Continuing Education Questions from Page 201

1. Sheathings serve to enclose wood or metal-framing buildings and provide a surface for the application of exterior claddings and finish materials. Sheathings may also be required to provide racking or shear resistance, fire resistance and moisture resistance. Additionally, sheathings serve to enclose buildings during construction.
2. Paper-faced and glass-mat-faced gypsum sheathings are surface-reinforced panels. Both rely on a surface layer for moisture resistance, strength and fastener holding power. If the face layer of these panels is torn or pierced or if water penetrates the cut end of the panel, these sheathings will lose both strength and water resistance. Gypsum/cellulose panels are core-reinforced panels featuring a homogenous cross-section made from cellulose fibers, gypsum and water-resistant additives. Gypsum/cellulose panels have no face layer to separate from the core and will not lose their strength when cut or when fasteners are overdriven. Due to their superior structural strength and fastener holding power, the panels can also be installed over 24 inch o.c. framing.
3. Plywood and OSB sheathings provide excellent racking and shear strength. They also provide a nailing base for siding materials that require fastening between studs. However, wood-based sheathings provide little or no fire resistance and therefore cannot be used in non-combustible construction. While various grades of plywood offer differing levels of exposure performance and moisture resistance, wood-based sheathings may swell, warp or rot when exposed to damp environments.
4. Sheathing water resistance impacts both project construction and long-term performance. During construction, sheathings are used to enclose buildings, permitting interior work to continue regardless of weather conditions. Sheathings that can withstand direct exposure to moisture for longer periods allow greater flexibility in construction scheduling. Moisture resistance also ensures that sheathings will be able to effectively withstand potential moisture intrusion.
5. Three key installation issues should be considered when specifying sheathings – handling, cutting and fastening. Smaller, lighter and more rigid sheathing panels are easier to lift and put in place, while larger, heavier and more flexible panels are more difficult to erect. The easier a panel is to handle, the more likely it will be installed correctly and efficiently. Panel cutting and fastening requirements also impact installation speed and quality. Solid-core gypsum/cellulose panels eliminate concerns about overdriven fasteners and can be installed as quickly – or more quickly – than paper-faced or glass-mat-faced gypsum panels.

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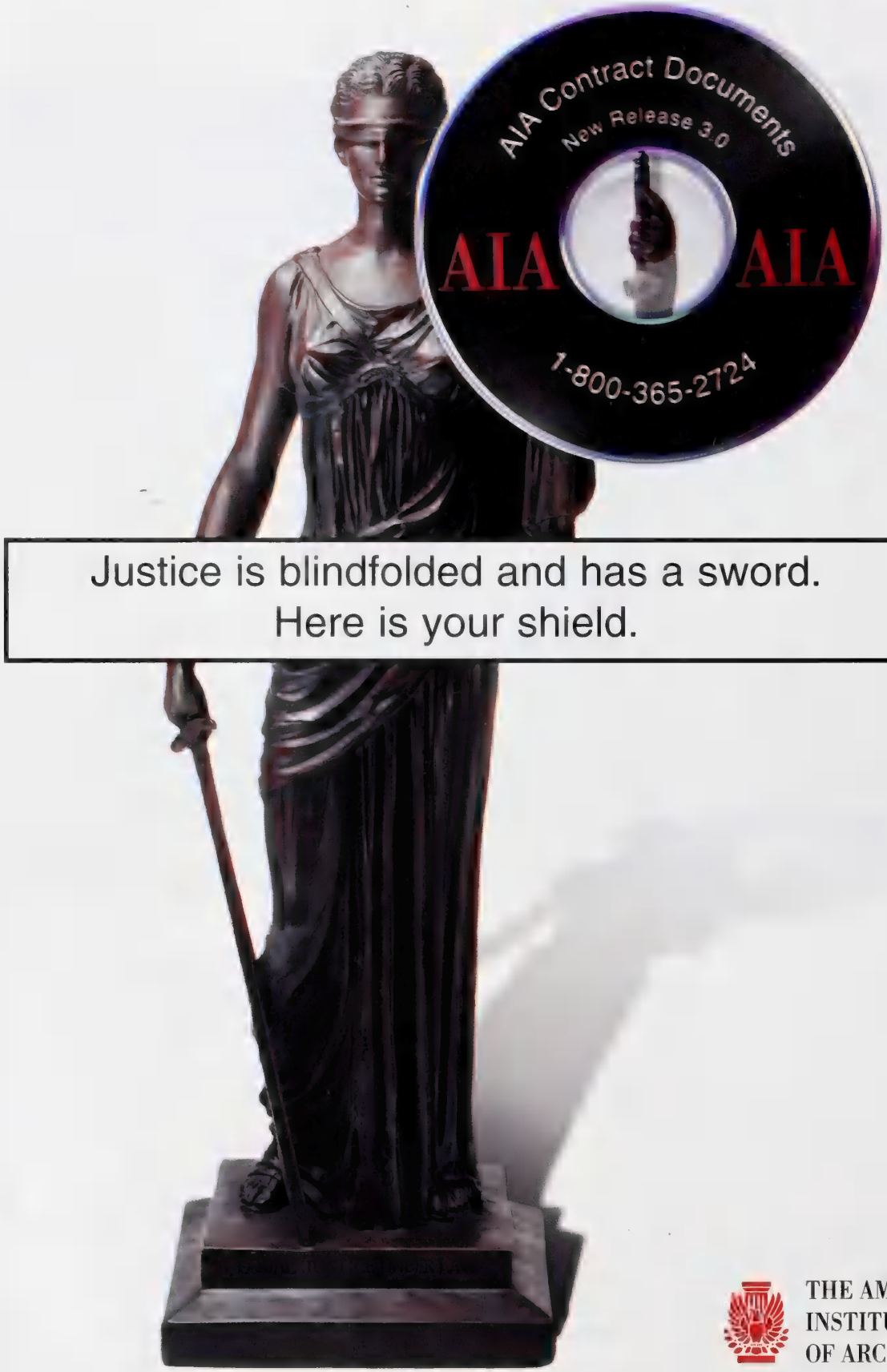
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Go to Architecturalrecord.com for coverage

of the World Trade Center: In Memoriam



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Architecturalrecord.com devotes a special section to news, commentary, resources, assistance and links to information related to the World Trade Center tragedy and creates a forum for the community of architects.

Many of the editors and business staff of *Architectural Record* were in lower Manhattan on the morning of September 11, 2001. In this special section, *Record* presents continuing coverage on the evolving story of the World Trade Center.

On the web:

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  Editor in chief Robert Ivy, FAIA, on witnessing the fall of the towers plus accounts by other *Record* editors
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Bold: *indicates page number.*

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PAGE NUMBER	READER SERVICE NUMBER	
250	*109*	Adams Rite Manufacturing Co
254		AIA Contract Documents
265		AIA eClassroom
232		AIA Handbook
233	*115*	AISC/Amer Inst of Steel Construction
12	*6*	Alusuisse Composites Inc
14-15	*7*	Andersen Commercial Group
73		Anthro Technology Furniture
16, 255		Architecturalrecord.com
189	*72*	arcSP/Architronix
2cov-1	*1*	Armstrong
2-3	*2*	Armstrong
179	*66*	Avonite
202	*75*	Belden Brick Company, The
40-41	*14*	Bentley Systems Inc
44	*17*	Bergerson
248	*107*	Bilco Company, The
32-33	*12*	Bruce Commercial Hardwood Floors
169		Build Boston
99	*51*	C/S Group
66	*33*	Canterbury International
230	*91*	Ceco Door Products
55	*25*	CENTRIA Architectural Systems
235	*93*	CENTRIA Architectural Systems
78	*41*	CNA/Victor O Schinnerer & Co Inc
50-51	*21*	Copper Development Association
88	*48*	Copper Sales Inc
68	*35*	CRSI/Concrete Reinforcing Steel Inst
228	*87*	DécorCable Innovations LLC
245		Dell
206	*79*	Door & Hardware Institute
238	*95*	Doug Mockett & Company Inc
226	*86*	Dow Styrofoam
187	*118*	DPIC Companies
62		DuPont Corian
215	*82*	Duravit USA
52	*22*	Eagle Windows & Doors
58	*27*	EFCO Corporation
89	*49*	elliptipar
146	*59*	EPIC Metals Corporation
244	*104*	Feeney Wire Rope & Rigging
203	*76*	Follansbee Steel
107		Forms + Surfaces
236	*94*	Gardco Lighting
65	*32*	Georgia-Pacific
238	*96*	Glass Studios Ltd
60-61	*29*	Glen Raven Mills Inc
234	*92*	GR Plume Company
70	*37*	Graphisoft
251	*110*	Gypsum Association
48-49	*20*	Hambro/Canam
167	*60*	Hanover Architectural Products
223	*84*	Hansgrohe Inc
54	*24*	Hartco Flooring Company
116	*55*	High Concrete Structures Inc
186	*70*	Hoover Treated Wood Products Inc
86	*46*	Hy-Lite Products Inc
174	*65*	IBEX Construction
42	*15*	Inclinator Co of America
240	*98*	Invisible Structures Inc
191-195	*74*	Jeld-Wen Inc
224	*85*	Jenn-Air
6-7	*3*	Johnson Controls
80	*42*	Kalwall
20	*9*	landscapeforms
181	*67*	Laticrete International Inc
183	*68*	Lehigh Portland Cement Company
67	*34*	Lutron
38-39	*13*	Marvin Windows & Doors
204	*77*	MBMA/Metal Building Mfrs Assn
46	*18*	MBNA America
240	*99*	McNichols Co
74	*38*	Mitsubishi Chemical America Inc
249	*108*	Modern Fan Co, The
16A-L		Mohawk Group, The
17	*102*	Mohawk Group, The
229	*88*	Mortar Net
205	*78*	National Gypsum Company
253	*111*	Naturalite
241	*100*	NECA/IBEW NLMCC
3cov	*114*	Nemetschek North America
190	*73*	Norco
69	*36*	Owens Corning
63	*30*	Pacific Lumber Company, The
77	*40*	Parex Inc
81	*43*	Pawling
97	*50*	PCI/Precast/Prestressed Concrete Inst
239	*97*	PCI/Precast/Prestressed Concrete Inst
30-31	*11*	Pella Windows & Doors
87	*47*	Petersen Aluminum
59	*28*	Pilkington
244	*103*	Pocopson Timberworks Inc
47	*19*	Pozzi Wood Windows
10-11	*5*	PPG
43	*16*	Rambusch
53	*23*	Rambusch
56-57	*26*	Ricoh
172	*63*	ROHL
82	*44*	Roppe Corporation
229	*89*	Seiho International Inc
119	*58*	Sherwin-Williams
219	*83*	Simonton Windows
246	*105*	Sitmatic
29	*10*	Sloan Valve Company
103	*52*	Smart Technologies Inc
111	*54*	Smith-Midland
85	*45*	Solutia
243	*101*	Sony Electronics Inc
168	*61*	SPL Integrated Solutions
4, 5	*116*	Steelcase
76	*39*	Stone Dimensions Inc
173	*64*	Style Solutions
168A-D		Technical Glass Products
118	*57*	Temple
259	*113*	Terrazzo & Marble Supply Companies
257	*112*	Trimco/BBW
188	*71*	Trus Joist
197-201		USG Corporation
45		USG Corporation (Ceiling Systems)
4cov		USG Corporation (Design Wizard)
196		USG Corporation (Sheathing)
208	*80*	Viking Range Corporation
64	*31*	Viracon
247	*106*	VPI
18-19	*8*	VT Industries
170-171	*62*	Vulcraft, A Division of Nucor Corp
170A-B	*117*	Vulcraft, A Division of Nucor Corp
117	*56*	Wausau Tile
8-9	*4*	Weather Shield Windows & Doors
229	*90*	White River Hardwoods
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184	*69*	Wiremold
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CIRCLE 112 ON INQUIRY CARD



AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

ANSWERS TO: "DYNAMIC CONCRETE IN THE 21ST CENTURY"

Questions appear on page 180. To receive CES credits, fill in the education reporting form below or on our Web site, www.architecturalrecord.com.

1. Portland cement is the industry standard, but different types of cement are used for their color and other properties. Lehigh Aalborg white cement was used for its uniform color and because it generates a lower heat of hydration, which was needed in the thick walls to ensure that their internal temperature did not rise above 160 degrees while curing. Pozzolan fly ash was used to improve workability and surface quality.

2. The biggest problem for concrete is moisture penetration. Concrete is porous, which allows air and moisture to permeate it. When the moisture works through to the reinforcing steel bars and mesh, it causes the steel to rust and expand. This pushes the concrete away, resulting in cracking and spalling. Ancient Roman concrete was not reinforced with steel, so it did not suffer from this problem.

3. The MIT dorm was designed with a concrete perforated bearing wall to allow large openings for a view. A precast concrete structural system was used to achieve this porous effect. High-strength concrete was used, creating a clean and rugged surface on the inside, covered by insulation and aluminum panels on the outside.The vertical and horizontal members were made of high-strength concrete with four reinforcing bars each, increased in diameter for strength.

4. Italcementi developed a concrete made of a brilliantly white cement, Bianco TX Millennium, and mixed in photocatalytic particles to oxidize atmospheric pollutants, keeping the brightness in the color. The aggregate used in the concrete is Carrara marble, which contributes to the mirror finish.

5. Fibers are being used in two different ways. First, synthetic fibers replace steel-rod reinforcing bars. The fibers have stronger tensile strength, are lighter weight, do not rust, and make irregular forms easier to pour. A second type of fiber, carbon, is added to the concrete mix. Carbon fibers make the concrete stronger and able to withstand greater stresses. When a stress occurs, an electrical resistance, which can be measured, is created between the fibers and the mixture. This allows minor structural flaws to be detected.

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Terrazzo Association

tpc
terrazo promotion committee

For specifications and additional information, visit our website at WWW.NTMA.COM
#1-800-323-9736

Southwest Terrazzo Association

CIRCLE 113 ON INQUIRY CARD

Concrete Waterproofing by Crystallization



Applied as a slurry coating Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that "plugs" the pores of the structure preventing water seepage. Xypex is ideal for use on the "inside" of wet underground structures. Call toll free 1-800-961-4477 or visit our web site at www.xypex.com

Xypex Chemical Co.

CIRCLE 150 ON INQUIRY CARD

Ornamental Picket Fence with a Purpose

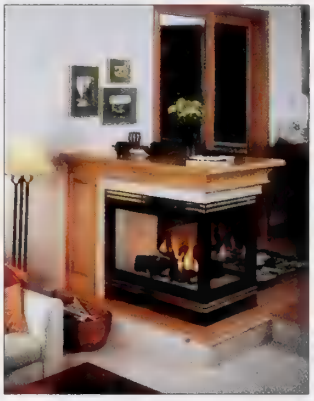


Monumental Iron Works™ is a modular system with the solid look & feel of authentic wrought iron. When assembled, it creates one of the strongest ornamental fence systems on the market. Welding processes are eliminated to avoid red rust problems. MIW utilizes a duplex coating of polyester resin over hot-dip galvanized steel for corrosion protection. Master-Halco, Baltimore, Maryland 21040. 410.676.2744 Email: spec@fenceonline.com Web site: www.fenceonline.com

Monumental Iron Works™

CIRCLE 151 ON INQUIRY CARD

Three-Sided Fireplace for Unlimited Installations



Heat-N-Glo introduces model PIER-TRC, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The PIER-TRC is perfect as a room divider, bar, end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the PIER-TRC can be operated by remote control for the ultimate in convenience. Call 888-427-3973.

Heat-N-Glo

CIRCLE 152 ON INQUIRY CARD

ADA Insulation Safety Covers

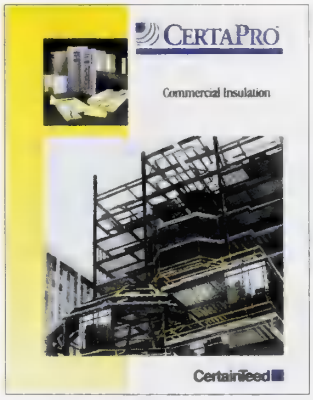


Plumberex Specialty Products, Inc. is the only company that manufactures a complete line of ADA safety covers for commercial & residential applications, meeting all building & fire codes with a -0- smoke rating. The Handy-Shield™ Safety Cover is the one and only ADA safety cover on the market with a "Dual" fastening system to help deter theft! For more information call 800-475-8629, Website: www.plumberex.com or email: plumberex@earthlink.net

Plumberex Products, Inc.

CIRCLE 153 ON INQUIRY CARD

CertaPro



In this 45-page, full-color catalog, CertainTeed will give you the full story on its nine CertaPro products and their thermal, acoustical, fire safety, ventilation and moisture-resistant properties. Also features a guide for commercial building specifications and a glossary of terms. All you need to know about commercial insulation: 1-800-233-8990.

CertainTeed Corporation

CIRCLE 154 ON INQUIRY CARD

Parallel Design Partnership Limited

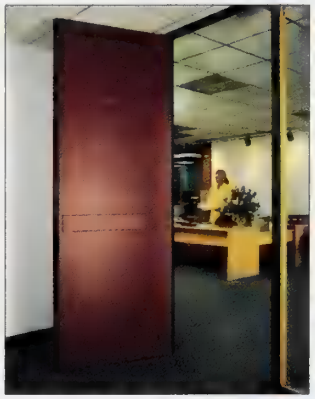


"ellen's brackets," an anodized-aluminum shelving system designed by M Ali Tayar, provides an elegant alternative to existing bracket-and-track systems. Cantilevered brackets come in two sizes, for shelves 3/4 or 3/8-in. thick and 10-in. deep. Wall-mounted tracks permit 1 1/2-in. adjustment of wood, glass or plexiglass shelves. For more info phone Parallel Design Tel: 212-989-4959 Fax: 212-989-4977.

Parallel Design

CIRCLE 155 ON INQUIRY CARD

Applications



The new flush exit device is designed for use on TOTAL DOORS in single, pairs and double egress pairs. Ideal for corridor & elevator lobby applications in all commercial facilities. The exit device allows continuous, uninterrupted sightlines in corridors when doors are pocketed in the open position. Its quiet operation is ideal anywhere noisy hardware is a problem. TOTAL DOORS can be retrofitted into existing door frames, saving time & expense.

Openings

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Decorative Grilles



Unusual visual effects emerge when our grilles are designed for area effects. Versatility is the theme. R&G offers architects and interior designers many ways to express the changing forms of metal with the integrity of R&G's architectural grilles. Custom or standard finishes are available plus any grille can be made in matching color to blend with your decor. 202 Norman Ave., Bklyn, NY 11222. 800-521-4895, Fax: 718-349-2611.

Register & Grille Mfg. Co.

CIRCLE 157 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
T: (800) 484-4042 ext 3042 / F: (770) 889-9152
E-mail: Ally_Wingate@McGraw-Hill.com

Ventilate All Baths with One Quiet Fan



ALDES ventilation specialists offer multiple solutions to noisy and ineffective bathroom fans. Quality remote mounted fans provide both quiet and effective exhaust. Systems available for 1 to 6 baths. Simple to install. Energy efficient. Cost Effective. Super quiet. ALDES the art of ventilating. American ALDES Ventilation Corp. 4537 Northgate Court, Sarasota, FL 34234-2124 Phone: 800-255-7749 www.americanaldes.com info@aldes-us.com

American ALDES

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Specify This.

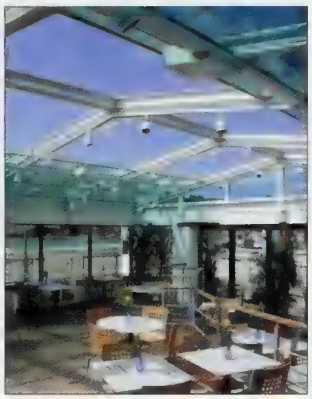


Did you know one of the most cost-effective ways to produce high-quality, frameless cabinet systems is CabParts? With over 1,500 sizes & types of cabinet boxes, CabParts are easily assembled to produce cabinet installations of superior quality. Precisely dimensioned, competitively priced & easily assembled on site, mean you have more control over your casework than possible through alternatives. Call 970-241-7682 or visit our website for the full story. www.cabparts.com

CabParts

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Retractable Roof Enclosures & Skylights



Custom designed retractable roof panels and operable skylights create year-round settings. At the touch of a button, motorized panels retract to open 50% of the roof area, letting in sunshine and fresh air. Maintenance-free thermally broken aluminum framing. Enclosures ideal for restaurants, patios, pools and atriums. For more information, call 800-267-4877, Email: openaire@openaire.com or visit www.openaire.com

OpenAire Inc.

CIRCLE 160 ON INQUIRY CARD

Melton Classics: Columns, Balustrades, and Mouldings



Melton Classics architecturally correct columns, balustrades, and architectural details, are the industry standard for quality and design. Columns are available in fiberglass, resin composite, GFRC, GRG and wood. MarbleTex™ Balustrades and columns are integrally colored and require no painting. Ask us about our complete line of architectural ornamentation in Melton Stone™ cast stone. Call toll free 800-963-3060 or visit www.meltonclassics.com

Melton Classics

CIRCLE 161 ON INQUIRY CARD

Pflow Lifts Safely Move Materials Between Levels

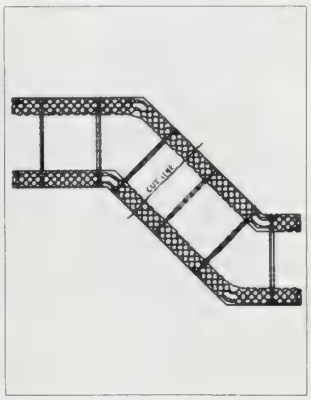


Pflow Vertical Lifts transport materials between two or more levels. Designed for mezzanines, through floor, interior & exterior applications. Capacities from 10 lbs. to 100,000 lbs., vertical heights to over 200', carriage sizes to 30' x 30'. Mechanical, hydraulic and fully automated systems. Guaranteed code approval. Visit Pflow website for complete product information and CSI specs. Call 414-462-8810 Fax: 414-462-2673 www.pflow.com

Pflow Industries, Inc.

CIRCLE 162 ON INQUIRY CARD

Arxx Building Products Product Announcement

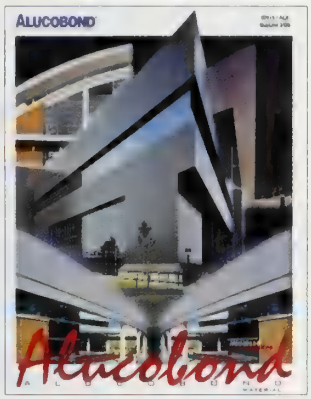


The Arxx™ High Performance Wallsystem now includes the industry's first Double 45° Corner form. One simple cut allows a left and right hand corner form. Currently, the Double 45° Corner forms are available in the 6" and 8" core sizes. Arxx – creating solutions for all your design challenges.

Arxx Building Products

CIRCLE 163 ON INQUIRY CARD

New Alucobond® Material Brochure



Totally new Alucobond® Material brochure in dramatic new format illustrates the use of Alucobond Material in a variety of innovative applications and colors. Alucobond Material is the original ACM (aluminum composite material) and has been used on more than 50,000 buildings worldwide. Alucobond Material is always the affordable solution. For more information, call 800-382-6445 or visit www.alusuisse-comp.com

Alusuisse Composites, Inc.

CIRCLE 164 ON INQUIRY CARD

CHROMIX® Admixtures for Color-Conditioned Concrete



Award winning projects begin with award winning materials. CHROMIX® Admixtures for Color-Conditioned Concrete are colored, water-reducing, set-controlling admixtures for architectural concrete. Coloring concrete integrally, they produce rich hardscapes & precast, tilt-up, or cast-in-place buildings of natural beauty. CHROMIX Admixtures provide permanent, streak-free color conditioning, & increased concrete strength at all ages. 800-800-9900 or info@scofield.com

L. M. Scofield Company

CIRCLE 165 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
T: (800) 484-4042 ext 3042 / F: (770) 889-9152
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Curved Solutions

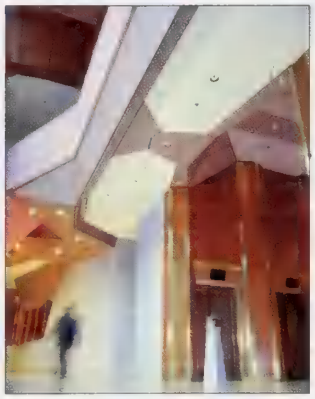


Luxalon Curved Solutions, an exposed grid system by Hunter Douglas, provides the opportunity to create both volume & sculpture. Flowing ceiling surfaces can complement a variety of interiors & enhance acoustical performance. Available in both stocked radii & custom radii, Curved Solutions metal ceiling systems are economical & easy to install. For additional information call 800-366-4327 or visit www.hunterdouglasceilings.com

Hunter Douglas, Inc.

CIRCLE 166 ON INQUIRY CARD

Acoustical Wood Products



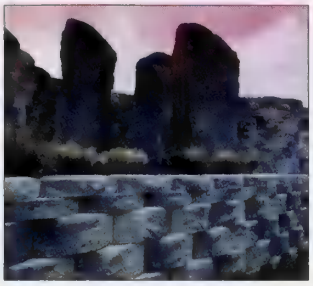
WOODTRENDS reaches well beyond the limits of contemporary form and function. Architects and designers now have the freedom to specify beautiful wood systems with excellent acoustical quality. WOODTRENDS offers 6 systems for walls & ceilings that are available in 24 standard veneers, plus 40 additional veneers including some truly exotic species. All WOODTRENDS systems are available with fire rated components. 1-800-569-1294. www.soundseal.com

Sound Seal

CIRCLE 167 ON INQUIRY CARD

Keystone Retaining Wall Systems

KEYSTONE RETAINING WALL SYSTEMS
A CONTECH COMPANY

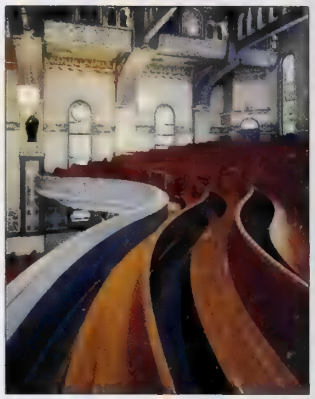


Keystone Retaining Wall systems offers irresistible beauty that lasts. The system was developed with simplicity of construction in mind. 6 simple steps are all it takes for start-to-finish efficiency. Because Keystone offers great looks, easy installation, low maintenance, & durability, it delivers a superior return on investment. As the original & proven market leader, it's no wonder the Keystone retaining Wall System is the preferred choice across the US & around the world for commercial, public & residential properties. Web: www.keystonewalls.com

Keystone Retaining Wall

CIRCLE 168 ON INQUIRY CARD

The Radius Curved Church Pew

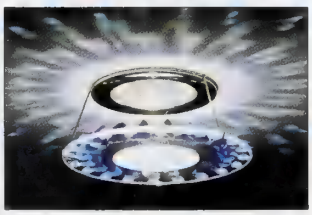


Since 1919, New Holland Church Furniture has supplied churches nationwide with both custom & standard church furniture. Today, New Holland is the only manufacturer of "Radius Curved Pews" in the USA. As a certified member of the Architectural Woodwork Institute (AWI), you can be assured of our consistent high quality. New Holland has just developed all new product catalogs for our Pews & Solid Wood Chairs. New Holland Church Furniture, 313 Prospect St, New Holland, PA 800-220-1465

New Holland

CIRCLE 169 ON INQUIRY CARD

Contemporary Crystal Creations



The Aura of Light. Orbit North America Ltd. is proud to introduce a line of breathtaking crystal creation panels from the House of Swarovski for its recessed down-light series. Crystal making at its best, the House of Swarovski is known for its design excellence, innovation and unparalleled crystal quality. We also offer a customizable projection crystal panel for use in restaurants, bars, clubs, corporate offices or retail environments. www.orbitlight.com

Orbit North America, Ltd.

CIRCLE 170 ON INQUIRY CARD

NEO-COMBY



The NEO-COMBY, is a combination toilet and basin fixture constructed of heavy-gauge stainless steel, perfect for all types of bathroom applications. Its features include a vertical storage space with adjustable shelving, an integral towel bar and a built-in bath tissue holder. The exclusive NEO-METRO Collection includes stainless steel washbasins, tubs, toilets, urinals and other fixtures. Call (800) 591-9050 or visit www.neo-metro.com.

Acorn Engineering Co.

CIRCLE 171 ON INQUIRY CARD

Fireframes™

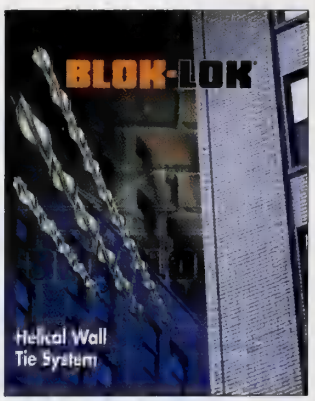


Technical Glass Products introduces Fireframes™ – fire-rated door and window frames with sleek, European styling. Fireframes™ allow large expanses of glass, and are well-suited to applications where aesthetics are important. Available in a Designer Series and a Heat Barrier Series, the doors and frames carry ratings up to 2 hours. For complete information call 800-426-0279 or visit www.fireglass.com

Technical Glass Products

CIRCLE 172 ON INQUIRY CARD

Stainless Steel Helical Wall Tie System



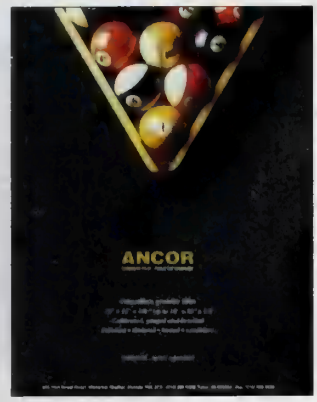
Blok-Lok, with over 35 years experience in the design & manufacture of masonry reinforcing and tie systems, provides innovative solutions for the repair & stabilization of defective walls. Blok-Lok offers an economical stainless steel helical wall tie that is driven into position through a properly sized pilot hole, providing a positive connection between wythes, while allowing for differential movement. Call 800-561-3026 or visit our website at www.blok-lok.com

Blok-Lok, Limited

CIRCLE 173 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
T: (800) 484-4042 ext 3042 / F: (770) 889-9152
E-mail: Ally_Wingate@McGraw-Hill.com

Ancor Granite Tile



Ancor produces over fifty No. American and Imported granites in a full range of colors and finishes for residential, commercial and institutional use. Standard format is 12 x 12 x 3/8"; other sizes up to 18 x 18 x 1/2" available. Honed finish tile is particularly suitable for high traffic commercial areas, 435 Port Royal West, Montreal, Quebec, H3L2C3, Canada. Ph: 514-385-9366, Fax: 514-382-3533.

Ancor Granite

CIRCLE 174 ON INQUIRY CARD

Quick-Spec..the desk top companion for architects!



The new Fire Glass Quick-Spec from InterEdge Technologies offers a fast, finger-tip reference to a complete range of fire & safety rated products. For in-depth product information & options, manufacturing video & CSI specifications just slip out the CD & go. It's a must for those who don't have time to wade through the office library or search the web for clear fire & safety glazing solutions.Fax:415-289-0326, email: interedgemsf@aol.com; www.firesafe-glass.com.

InterEdge Technologies

CIRCLE 175 ON INQUIRY CARD

IQ/MLC™ Window Management System



The IQ/MLC window management system from MechoShade offers mid-window alignment & responsive multi-level switch control. Touching the appropriate combination of buttons will align the shades at any 3 default or custom mid-window positions, including full up & down for uniformity of shade positioning. The IQ/MLC offers multiple levels of control (local, sub-group, group & master) & can be reconfigured without rewiring. Call 718.729.2020. Visit www.mechoshade.com

MechoShade Systems, Inc.

CIRCLE 176 ON INQUIRY CARD

Site Furniture of Distinction

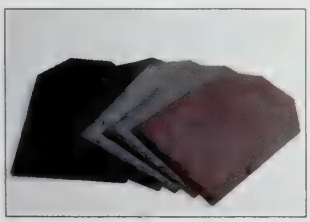


Keystone Ridge Designs, Inc. is the architect's choice for premier site amenities. Offering a full line of steel furnishings, we pride ourselves on exclusive designs and our patented powder coat finish, KEYSHIELD,™ that is unparalleled in the industry. Quality, craftsmanship, and dedication to your creative vision are the hallmarks of Keystone Ridge Designs. For more information please call 800-284-8208 or e-mail: KeystonRdg@aol.com. www.keystoneridgedesigns.com

Keystone Ridge Designs

CIRCLE 177 ON INQUIRY CARD

Celestial Slate Tile

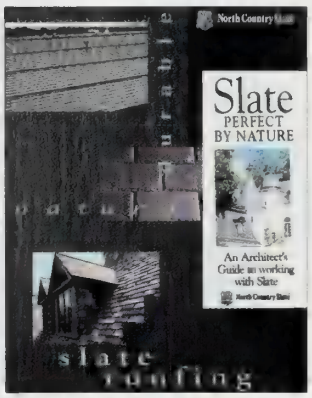


EcoStar, a leading manufacturer of premium steep slope roofing products, is proud to introduce their newest fire retardant roofing product, Celestial Slate Tile. Celestial Slate offers the beautiful look of slate yet is lightweight and 1/2 the cost of a traditional slate roof. Celestial Slate provides a 50-year product warranty, Class 4 Hail Resistance, 100 mph wind warranty and a UL Class A Fire Rating. Celestial Slate is made of 80% post-industrial materials. 800-211-7170.

EcoStar

CIRCLE 178 ON INQUIRY CARD

Slate Roofing



Natural North Country Slate®. For enduring character, nothing else compares. No wonder—it's perfected by nature! Free product brochure showcases the wide variety of sizes and colors, and comes with our Architect's Guide to working with this remarkable roofing material.

North Country Slate®

CIRCLE 179 ON INQUIRY CARD

Sun Management™ Glass System

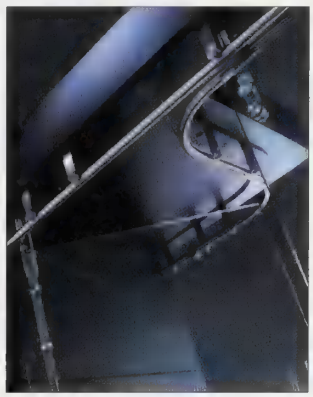


Maintain design freedom while improving the solar performance of building envelopes with the Pilkington Sun Management™ Glass System. The system combines an outboard lite of a Pilkington solar control product or the new Pilkington Activ™ Self-Cleaning Glass with an inboard lite of Pilkington Energy Advantage™ or Pilkington Solar E™ Solar Control Low-E Glass. 419.247.3731.

Pilkington

CIRCLE 180 ON INQUIRY CARD

Manet Compact System



The Manet Compact system from DORMA Glas for sliding & pivoting glass doors features stainless steel fixtures and components to render a clean, modern, aesthetic look for corporate offices, meeting facilities and other applications. Designed for use on 3/8" and 1/2" tempered glass doors, the Manet Compact system consists of a wide assortment of sleek-looking components that enable smooth sliding and pivoting actions. More information: 1-800-523-8483

DORMA

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Bigfoot Systems® Footing Forms



Bigfoot Systems® Footing Forms is the only code recognized, evaluated, quality engineer designed, plastic footing form for construction tubes that meets or exceeds the building codes throughout North America. Bigfoot Systems® fit all 6", 8", 10", 12", 14", 16", and 18" construction tubes.

F&S Manufacturing, Inc.

CIRCLE 182 ON INQUIRY CARD

wide format. The Ricoh Aficio 470W.



Introducing the first wide format system to carry the prestigious Aficio® name. The Aficio 470W is a powerful stand-alone or connected digital solution. 600 dpi image quality. User-friendly touch screen. Even stamping and overlay features. Contact us for a DEPENDABLE DIGITAL™ wide format demo at 1.800.63.RICOH or online at ricoh-usa.com

RICOH Corporation

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Mix-In Colors for Concrete



Davis Colors transform ordinary concrete. Davis Colors are integral color admixtures that give concrete natural good looks and a permanent hue. Concrete suppliers mix them right in, so installation is cleaner and easier than toppings, shakes or coatings. The Davis Color Selector is a 4-page color card that includes all the popular shades, highlights many finish options and includes how-to information for successful colored concrete projects. 800-356-4848

Davis Colors

CIRCLE 184 ON INQUIRY CARD

Architectural Luminaries



Space Cannon Illumination proudly introduces our architectural color wash HSR fixture, the Focus, available in 700w and 1200w power sources. This fixture has an onboard computer to control the 3 dichroic tubes, zoom and shutter and includes a kit of 4 lenses for beam shaping up to 90°. 888-705-1028 www.spacecannon.com

Space Cannon

CIRCLE 185 ON INQUIRY CARD

NEW HABA® Single Story Loft



Gressco is the source for contract children's furnishings. The new Time for Children 2001 Catalog includes 60 pages of furniture. We supply simple interactive wall hanging units (no loose pieces) to carpeted platforms, room partitions & beautiful shelving & storage pieces. Our furniture is perfect for that waiting room, church, library or community center you are designing. www.gressco.com OR call 1-800-345-3480 to request a free catalog. Visit Gressco at NEOCON West Booth #2010.

Gressco Ltd.

CIRCLE 186 ON INQUIRY CARD

Rony

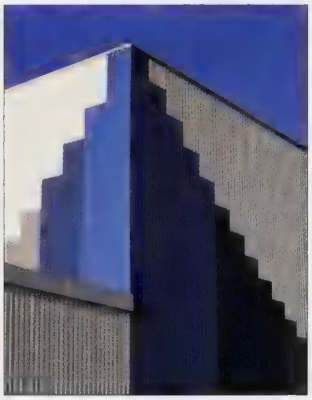


Rony, a clean and simple spotlight fixture. An MR 16 lamp fits securely into the fixture and is held in place by four springs. The Rony fixture can be tilted by approximately 90 degrees. As with all of Bruck's Uni-Plug fixtures, the twist and lock mechanism enables it to rotate continuously through 360 degrees. Finishes available in Matte Chrome, Chrome and Gold. 714/424-0500. Fx: 714/424-0505. www.brucklighting.com info@brucklightingsystems.com

Bruck Lighting Systems

CIRCLE 187 ON INQUIRY CARD

Now, Insulated Metal Panels from Thyssen Bausysteme



For more than a quarter century, international architects have opted to enclose their buildings with exterior metal panel systems from Germany's Thyssen Bausysteme GmbH. Now, insulated metal panels from this ThyssenKrupp Steel company are available in North America. These project-proven, competitively priced components offer new options for demanding designers. Contact authorized distributor New Century Building Systems. Call (856) 863-2666.

New Century Bldg. Systems

CIRCLE 188 ON INQUIRY CARD

Ludowici Roof Tile



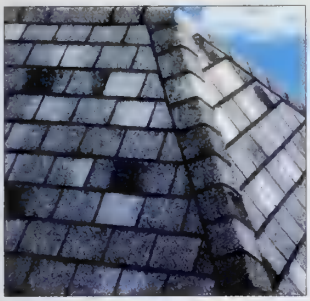
After more than 100 years, Ludowici clay roof tiles remain the preferred choice of architects and building professionals. No other clay tile manufacturer offers more colors, styles, fittings, textures, or finishes. And every tile is backed with a 75-year limited warranty (see actual warranty for details). Call for full-color brochure or visit www.ludowici.com

CertainTeed Corporation

CIRCLE 189 ON INQUIRY CARD

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E-mail: Ally_Wingate@McGraw-Hill.com

Hatteras®

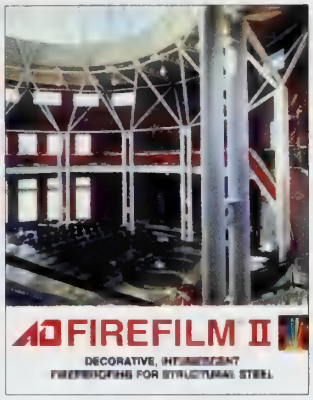


An oversized 18" x 36" fiberglass asphalt shingle designed to withstand hurricane force winds. Features a dramatic eight-inch exposure; deep one-inch shadow lines; seven colors; and a 40-year limited warranty, including 10-year warranty coverage against winds up to 110 miles per hour. UL certified to meet ASTM D3462 performance standards; Miami-Dade approved; algae resistant.

CertainTeed Corporation

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F. Joseph Moravec: A man with a mission

Interviewed by Ingrid Whitehead

Appointed this June as commissioner of the GSA's Public Buildings Service, F. Joseph Moravec is a busy man—in charge of asset management and design, construction, leasing, operations, security, and disposal for more than 330 million square feet in more than 8,000 public and private buildings that accommodate over one million federal workers. Recently he has put aside his designated mission of providing government employees with the best workplaces possible to concentrate on relocating some 2,000 Pentagon workers and some 2,800 employees on the fed's payroll in New York City displaced by the September 11 terrorist attack. He spoke to RECORD *before the tragedy, and in the darker days following, about his job and its new dimensions.*

Q: *In the aftermath of the September 11 attacks, how quickly did you have your systems back up at the Pentagon and in New York?* In D.C. we had 900 workstations up and running by Friday, and by Monday we had 2,000. In Lower Manhattan, we had 25,000 federal employees working. We evacuated 20,000 people from the World Trade Center buildings 6 and 7. We have been leasing space all over Manhattan to get them working again. One reason people come to work for the goverment is for love of country, and the way our security people responded, the way our systems came together after this tragedy really made that evident. I'm really proud. We should all be.

What is your agenda for the Public Buildings Service? Our fundamental mission is to provide the federal worker with the most superior workplace possible. Also, because 450 of the 1,800 buildings owned by the federal government are historic, and 40 of those are national landmarks, I am very concerned with preserving these treasures. My priority is to get the resources and funds necessary to deal with a backlog of poorly maintained buildings. Also, to develop a national asset-management authority and to promote and sponsor a property reform act.

What is your knowledge or interest in architecture? Working in the private sector for 25 years, I was trained to think of what the user would want—efficient floor space, views, etc. I appreciate good architecture, and good architects. The GSA's Design Excellence Program has been around for about five years, and it's dedicated to finding the best architects to build federal buildings. Included in that program is a national peer review group, which gathers important architects from around the country to review the first phase of new designs. That program, along with our Construction Excellence Program and our Art in Architecture Program, have given us ways to improve federal buildings.

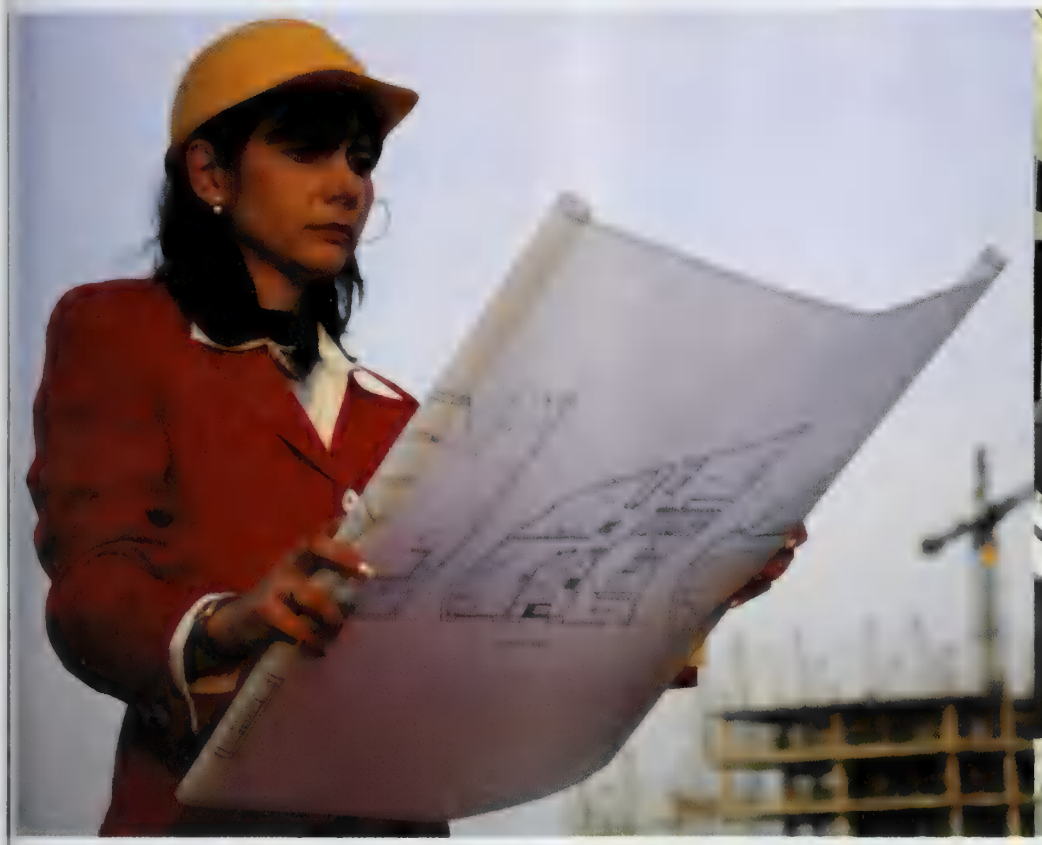
Have the terrorist attacks on the Pentagon and World Trade Center and the Oklahoma City bombing changed your building security agenda? Well, obviously these attacks have added new dimensions to my job. But the thing to remember is that Timothy McVeigh was not a great architectural mind. We can't let people like him design our buildings. We won't be building bunkers. We'll build structures that are secure, but attractive and emblematic, accessible and open, light and airy. The most rigid security standards will be upheld, and, luckily, technology in this realm is moving rapidly, so we can accomplish this.

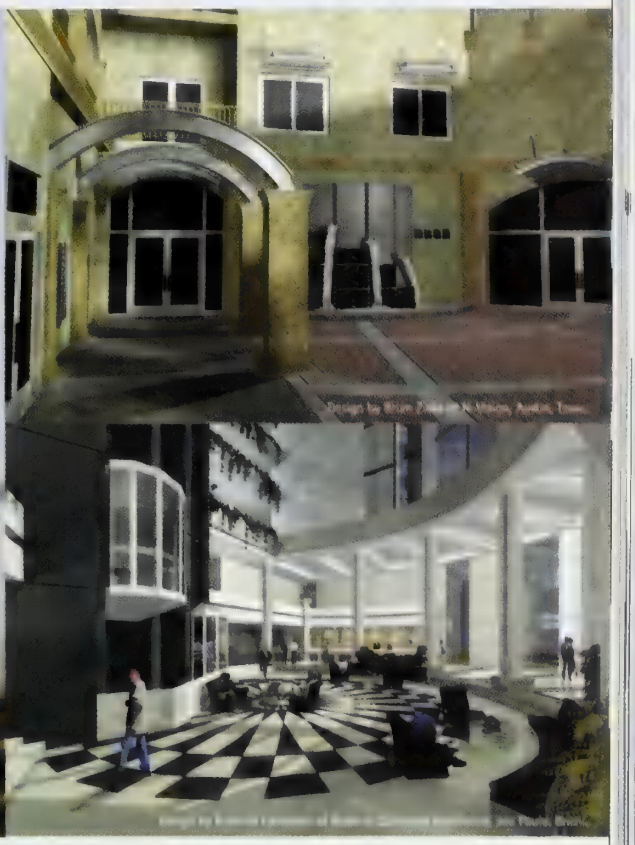
Do you think we should continue to build iconic buildings in America? I think public buildings should be iconic, yes. I think they should be expressive and symbolic of the spirit of the people. They should be timeless, high-value, and secure.

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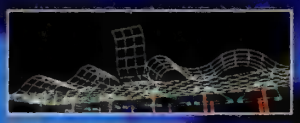
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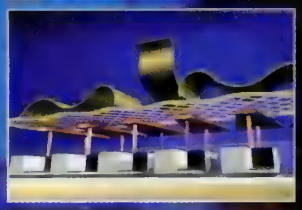
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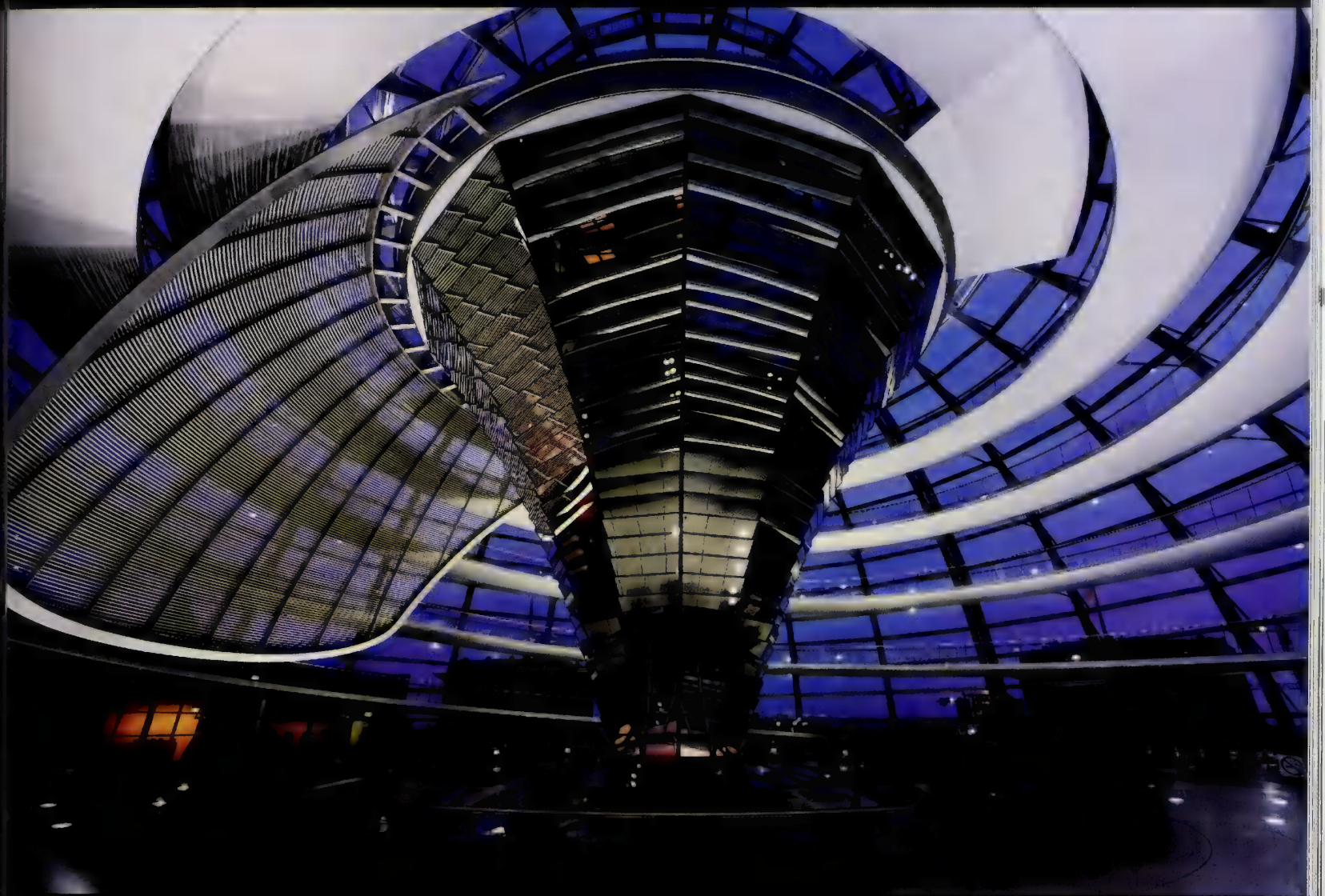
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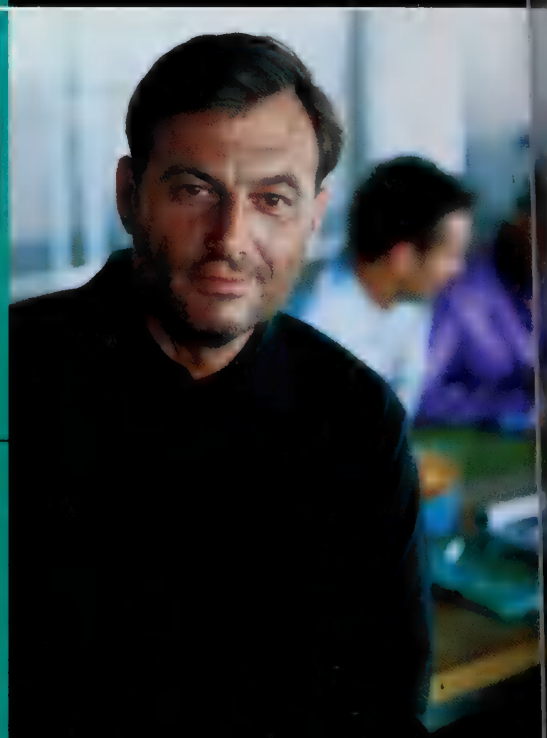
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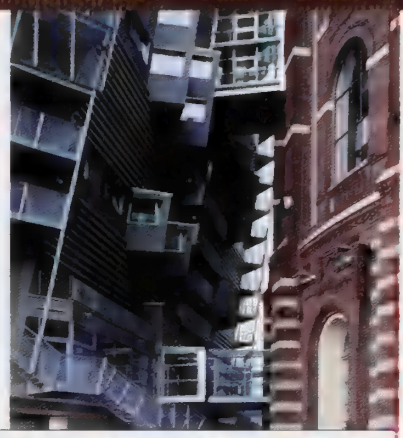
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Right: *Gasometer B, by Coop Himmelb(l)au; photograph by Gerald Zugmann►*

Special News Section

33 SPECIAL REPORT: World Trade Center: The cleanup continues
34 Significant damage to subways

WWW For continuous updates on the developing story at the World Trade Center, go to ***www.architecturalrecord.com***.

Departments

21 Editorial: Getting real*
29 Letters*
47 Correspondent's File: Lower Manhattan *by James S. Russell, AIA*
53 Dates & Events*
59 Archrecord2: For the emerging architect *by Kevin Lerner**
63 Commentary: TWA Terminal at risk *by Suzanne Stephens**
69 Critique: A post–September 11 future *by Michael Sorkin*
73 Practice Matters: Authentic in Atlantic City *by Charles Linn, AIA*
77 Snapshot: Brancusi sculpture *by S.A. Miller*
248 Profile: Robert Silman *by Clifford A. Pearson**

Features

84 Reality and Authenticity *by Michael Benedikt*
The new experience economy challenges how we judge what is real.

90 Preservation's Shackles *by Thomas Hine*
Is historic preservation an unquestionable virtue?

96 American Preservation: Revering the Past *by Thomas Mellins*
Preservation roundup, with a short history of the movement.

Projects

107 Introduction *by Suzanne Stephens and Sara Hart*

108 Gasometer B, *Vienna, Austria* *by James S. Russell, AIA**
Coop Himmelb(l)au
A stolid former fuel tank becomes fanciful housing.

116 Collège Gérald-Godin, *Canada* *by Paul Byard, FAIA**
Saucier + Perrotte Architectes in association with Desnoyers Mercure et Associés
Modern design helps turn a monastery into a college.

122 Magna Science Adventure Centre, *UK* *by Sara Hart**
Wilkinson Eyre Architects
An English steel-processing plant is remade as a science center.

128 Centre d'Archives de Montréal, *Canada* *by Paul Byard, FAIA**
Dan Hanganu with Provencher Roy and Associates
An adventurous addition respects the meaning of an old building.

Building Types Study 803

141 Essay: Renovation *by Clifford A. Pearson*

142 Rakow Research Library, *New York* *by John E. Czarnecki, ASSOC. AIA**
Bohlin Cywinski Jackson

146 Amon Carter Museum, *Texas* *by David Dillon**
Philip Johnson/Alan Ritchie Architects

150 Wall House, *the Netherlands* *by Alexander Gorlin**
John Hejduk, New York; Thomas Müller/ van Reimann Architects, Berlin

154 Harvey House, *California* *by Alan Hess**
Lautner Associates

158 Women's Museum, *Texas* *by David Dillon**
Wendy Evans Joseph Architect

New: For 10 additional renovation projects go to Building Types Study at ***www.architecturalrecord.com***. The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

Building Science & Technology

167 Healing Exteriors Injured by Time E
*by Sara Hart**
Historic buildings are returned to their original state of grace.

177 Digital Architect: Tech for adaptive reuse *by Jerry Laiserin, FAIA**

Lighting

189 Introduction

191 Creative Uses

195 Universal CityWalk *by Catherine McHugh**
Sussman/Prejza & Co.

202 University of Saint-Denis *by Claire Downey**
Bernard Dufournet and Jacques Moussafir

208 Lighting Technology *by Lindsay Audin**

211 Lighting Products

Products

217 Resilient/Laminate Flooring
221 Product Briefs
226 Product Literature

15 What's at architecturalrecord.com
232 Reader Service*
234 Manufacturers' Spotlight
246 Classified Advertising*
228 AIA/CES Self-Report Form*

The AIA/ARCHITECTURAL RECORD Continuing-Education Opportunities *are* **"Healing Exteriors Injured by Time"** *[page 167] and* **"EIFS: The Next Generation"** *[page 181] sponsored by STO.*

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DESIGN: Projects by and profile of Graftworks, a small NYC firm with some renovation/addition projects. **WORK**: What's it like to be a young firm practicing in NYC after 9/11? A special look. **TALK:** Share your thoughts and opinions on the forum question of the month.

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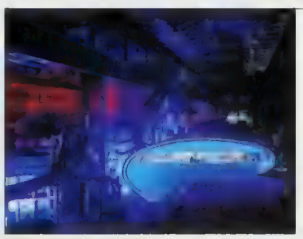
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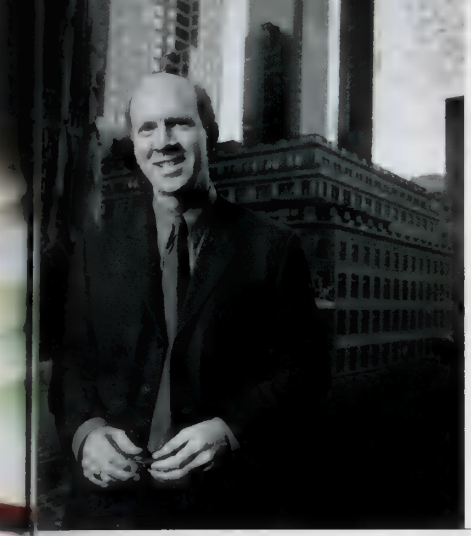


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Editorial

By Robert Ivy, FAIA

Get real. For architects, to say a work is authentic represents highest praise. Despite our continuing flirtation with veneer-thin pop, when searching for words to describe what we admire, we continually turn to authenticity—a term that is inarguable and inarguably right, what the architectural historian William Curtis calls "genuineness" or "probity." What truth *was to the Greeks or* virtue *to the Romans, this single word carries a world of positive meaning; it is an encomium that bears the weight of history and allusion, even with the tart whiff of who we are now.*

Authenticity as a subject has a patrician lineage. Plato and Aristotle pondered how to discern an original from an imitation, seeking to define the real. In Greek, it suggests action or accomplishment—not a passive object, but something done. Modern philosophers, including such well-known figures as Martin Heidegger, Jean-Paul Sartre, and André Gide, have followed in the wake of the ancients, linking authenticity and self-fulfillment. I do, therefore I am, despite my sometimes conflicted consciousness.

We use the term casually today, gratuitously throwing it into conversation when we expect agreement. We mention "authentic" sounds when we refer to music played on instruments that copy those of the fifteenth century, regardless of the fact that we may not know what those instruments sounded like. Authentic food conveys something about its essence, its origins, or its pungency. Say something is authentic and heads nod, even when the same individuals would vehemently reject other notions implying meanings beyond the here and now.

Authenticity suggests underlying values, a notoriously unfashionable attribute in a jumping universe, yet the values we ascribe to the term in the year 2001 vary from the former classical ideals, since our concepts are shaded by contemporary sensibilities and thought. We live in an age of parallel realities, a through-the-looking-glass world in which anything imaginable, including any articulation, can command its own existence, somewhere. So much the deeper our intrinsic love affair with genuineness, if tempered today by real frayed edges, a reality combining the rational with the imaginative, pleasure with the knowledge of its concomitant pain. In our eyes, the authentically real displays chromatic range.

To the modern sensibility, a fully shaded definition of authenticity implies dialogue. In employing the term to describe architecture, we inextricably link authenticity to place, as if an authentic building or work of architecture cannot exist outside of a site. Twenty years ago, the fashionable term was "context." Contemporary digital technology raises another question: Can purely virtual architecture be authentic? The answer: only in virtual space or virtual time. Once a cybervision leaps from a screen to a real foundation, it must deliver its own architectonic expression, on a real site. For real.

Likewise, we relate authenticity to time. To be considered authentic, an architectural design should state something about the moment, even if its statement is a bold denial of the status quo. Wright's expressionistic modernism, as at the Ennis House or La Miniatura in Los Angeles, bears relation to Cubism or to Corbu, yet speaks with the unmistakable authority of the genius from Spring Green. Even Wright's work bears a time signature.

Authenticity need not equate with regionalism, although architects operating within a strong regional tradition

may produce authentic architecture. Materials, forms, symbolism, conceptual creativity or rigor, and social underpinnings all may play a part in the development of an architecture of authenticity. However, authenticity rejects style, which fades, as a determinant. Instead, it relies on deep understanding of history or land or time or people—analyzed, rethought, and reconstituted in new buildings. The authentic project belongs to its setting, whether incised into the landscape or juxtaposed beside a preexisting fragment, like the architecture in this issue.

How can we pin authenticity down, when it encompasses such diffuse meanings? Historic preservation will be the lens through which we examine authenticity more closely. The latest AIA survey proved that most architects deal with structures built in earlier times by other builders. Over 50 percent of our efforts include designs in dialogue with found objects, real places, and earlier periods. By looking at how architects confront preservation, how we engage the built fabric of the preexisting, real world, we hope to define what authenticity means to this generation. How do we relate to the buildings that our predecessors built? What value do we assign to them?

Currently, preservation ranges across a broad spectrum. Four primary methods for engaging the past stand out: restoration (the careful reordering of what had been present in a given building, even if new methods or materials are required to accomplish it); adaptive reuse, in which we find new uses for older buildings, refitting or transforming them to match our current vision; reconstitution, like Japan's incomparable Temple of Ise, which is rebuilt every 20 years; and additions—either imitative or discursive.

Questions of confrontation inevitably arise. When a building has a strong identity or a strong material presence, how do you add to it, authentically? Within the preservation community, the answers have seesawed between extremes. In the 1960s, the accepted wisdom suggested differentiation between old and new, the authentic response being one of clarity and timeliness. Yet a postmodern understanding of preservation permitted additions both as replication and reinterpretation and would have allowed two educated individuals to vary in what they value, permitting him to denigrate "ersatz" historicism (even if appropriate in scale and materials), while she dismissed "harsh" modernism in historic settings. Potato, potahto, tomato, tomahto. Which is the authentic addition?

With our November issue, ARCHITECTURAL RECORD takes a leap into the fray, devoting an entire issue to a treasured, if beleaguered, term. With unusual focus for our comprehensive publication, we have devoted all of our pages to exploring authenticity in all its guises. To initiate the debate, two distinguished essayists, Michael Benedikt and Thomas Hine, discuss the nature of authenticity and the preservation dilemma. Our projects demonstrate strong additions to older structures in vibrant, sometimes strikingly discordant conversation with the past, rather than merely repeating older phrasing. They prove that strong architectural language, even assonance or dissonance, has its place in authentic preservation today.

The conversation continues. How to renovate and save modern buildings constitutes the Building Types Study, acknowledging earlier methods and materials while rethinking many of the techniques that made them distinctive. Critiques address the authentic character of post-9/11 New York and the contentious proposals for saving Saarinen's iconic TWA terminal. Technical articles on historic restoration and digital technology, and even architectural practice, complement the theme, with ongoing, broader discussions on our Web site.

Authenticity engages more than the past. The lessons we can glean from current preservation suggest directions for future projects. Consider these suggestions in concocting your own methodology. First, seek to know your subject deeply. Explore and internalize the work you will engage—from its myths and history to its geography and qualities of light. Where does it stand in time? For whom will it remain? What describes its moment—now and in a future now? Examine the givens, make them your own, and reinterpret them through all your faculties. This may not be a purely a rational enterprise. Authenticity, and authentic architecture, spring from full understanding, blending cognitive and intuitive energies, allowing deep knowledge to precede action. Accomplishment follows. In this rapidly orbiting world, styles change overnight; authenticity endures.

Robert Ivy

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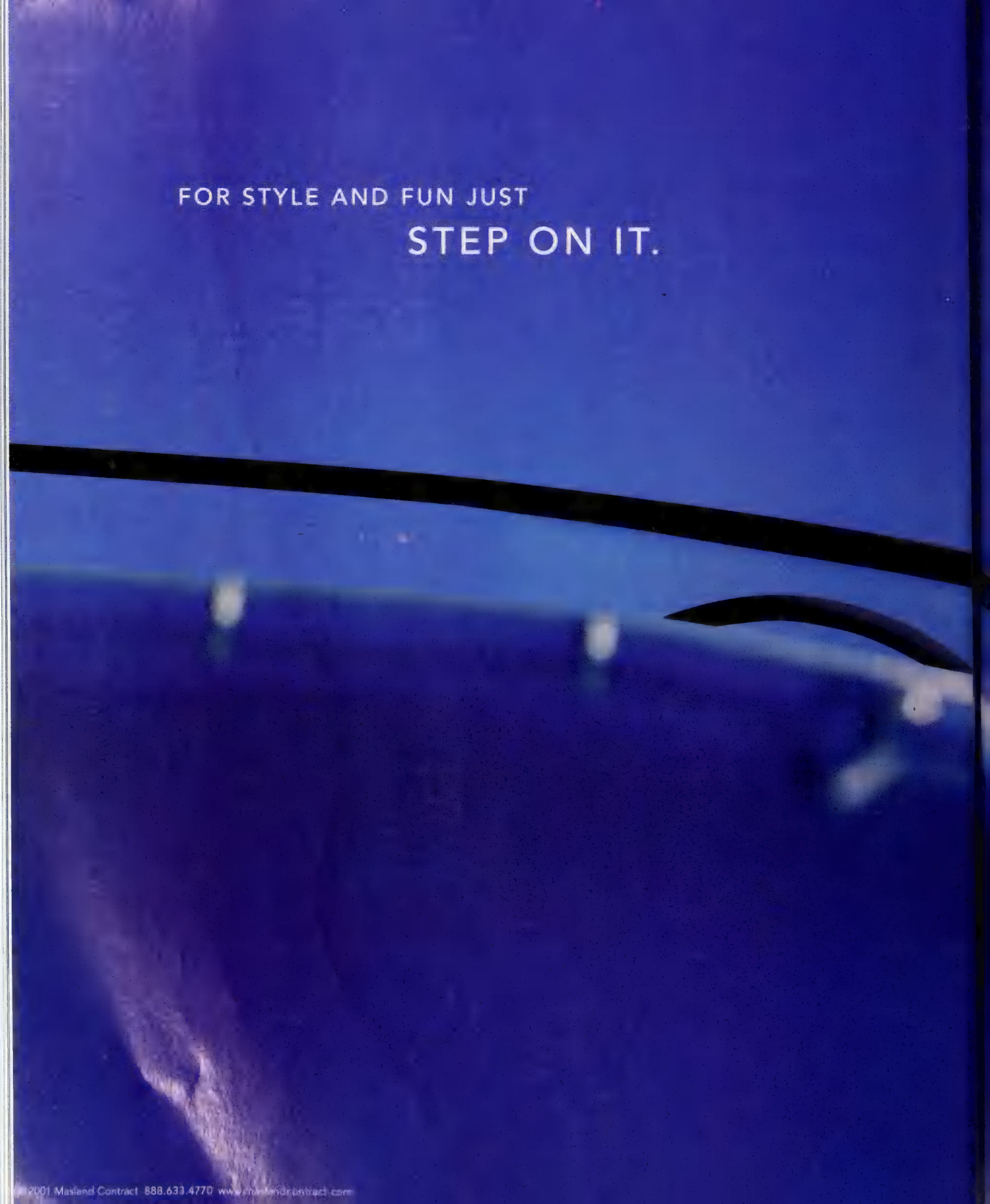
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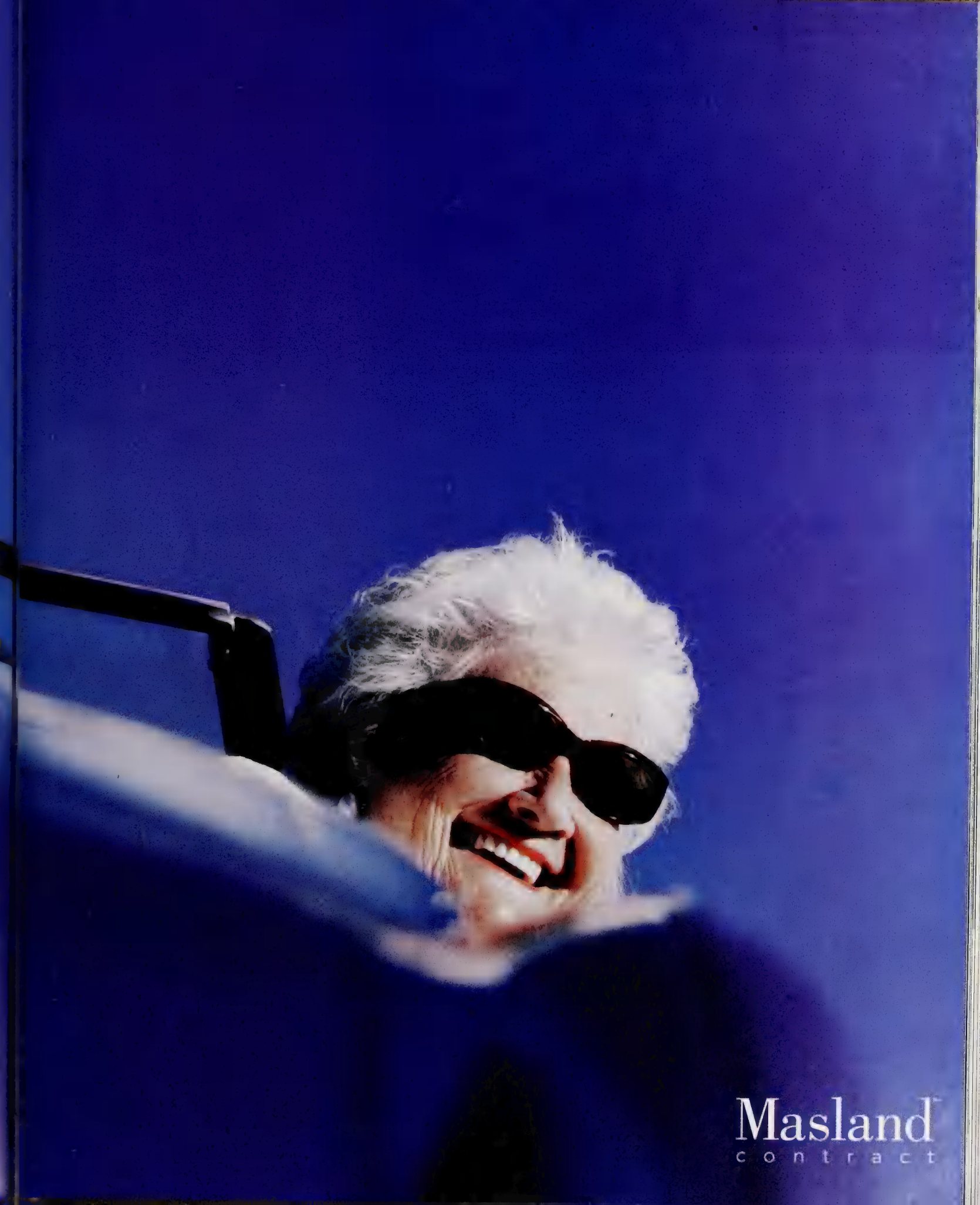
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CIRCLE 13 ON INQUIRY CARD

Letters

The dialogue must continue

"The art and science of building," has seemed to become the standard definition of architecture. However, shouldn't architecture be viewed more as a metaphor, or the language of living as it is manifested in people, cultures, spaces, and patterns?

There are those who are of the opinion that building the new WTC should be just another prescriptive exercise in construction. This and similar arguments are troubling to me. The trend now is to blindly stretch the limits of technology, either by expanding material technology or by testing the parameters of graphic design software—in the name of "modern" architectural practice—to produce ambitious structures. Often it is the same group of architects who are pushing the envelope—and conducting the propaganda for defining the "current" architectural language.

The resulting emphasis on sculptural monumentality at the expense of human essence should begin to alarm all architects and many user groups.

—Elias Rollie-Harvens, AIA
Via e-mail

Shooting the high horse

Thank you, thank you, thank you for excellent, introspective coverage on the WTC tragedy [Special Report, October 2001, page 22]. In essays that spoke to our fears, frustrations, and, yes, our grief—not only over the loss of innocent lives, but also of two of our profession's most monumental achievements—your October issue was a salve on our professional wounds.

The human toll on September 11 is incomprehensible. I can't get my mind around it—like trying to swallow a doorknob. It felt irreverent to grieve for the buildings themselves, but at least I could focus on that. I grieve also for the engineers and architects who were part of the making of those buildings.

In last month's "Letters" [page 56], Mr. Magnusson expressed it well when he stated, "The fact that the towers survived the initial attack hid the reality that virtually all buildings would collapse immediately." My initial astonishment was that the tops of the buildings were *not* sheared off as I would have expected. As the towers fell, my family members remarked that they appeared to collapse, like other buildings that had been purposely imploded. Yes, I told them, the buildings fell as perfectly as they stood.

The headlines screamed, "Over 6,400 Missing, Presumed Dead." They could have just as well cried, "Over 30,000 Saved."

The year after the World Trade Center towers debuted, the Sears Tower in Chicago said "top this!" Frank Lloyd Wright had his mile-high tower all designed, never built, for Oklahoma. Yes, there was a bit of arrogance and competition in our professional community—but it was a pride, not of the individual, but of a collective. Our skyscrapers were monuments to human achievement, and not individual power trips, as some have suggested.

—Sherry McReynolds
Fort Worth

In memoriam

Last week when this terrible attack occurred on the World Trade towers, I was brought back to my freshman year in college and a comment that one of my architecture teachers made, that New York would be better off if someone bombed the World Trade Center. He meant it as a comment on the dubious architectural merit of the buildings in the context of the New York skyline and other more sensitive buildings that had gone before. It is one of those offhand comments that has rolled around in my head for the past 25 years and has come to my memory unbidden every time I see the Manhattan skyline.

I can tell you that, for me—and I imagine a very large sampling of the world's population—the removal of these buildings from Manhattan does not improve the vista of the greatest city in America. Of course, one could argue that it was the means of removing the towers that renders this observation irrelevant, but, more to the point, it focuses on the real issue, that buildings are the people in them, the aspirations and dreams of their builders, their place in the world, and how they interact with the lives that make them important. To most people in the world (and, on at least two occasions, to terrorists from places far away from New York), those two buildings were powerful symbols of America and all it stood for, no matter how our profession and its critics viewed them.

—Michael Malone, AIA
Michael Malone Architects
Dallas

Second that emotion

I would like to second Alexander Gorlin's impassioned cry for a return to the Real, after the WTC disaster [Letters, October 2001, page 56]. The current scurrying for the scorched earth of the site is utterly distasteful, and architects ought simply to back off. As long as architecture is essentially real estate, we will never hear a word about space and responsibility to the citizens of New York to liberate this city from the grips of unparalleled greed and self-interest. The WTC site—owned by the city—belongs to everyone, now more than ever.

Perhaps the most egregious event in recent memory was recently staged at the Cooper Union, where architects rallied around one another to speak for everyone else. An event of extraordinary arrogance, it amounted to nothing more than commiserating by claque. The city should immediately terminate the lease for the WTC site and decommission it forever. All architects that liked the Yamasaki buildings may build the next pair in their own neighborhoods.

—Gavin Keeney
New York City

A matter of people

I was dismayed by your selection of design-professional responses concerning the rebuilding of the World Trade Center in the October 2001 issue. Why has no one addressed the comfort level future occupants would have in such a replica? To build "even higher" is downright arrogant. The new building(s) should incorporate contemporary issues of infrastructure, urban fit, security, safe egress, and sustainability, as well as form and symbol.

—Sanford R. Bender, AIA
Philadelphia

Corrections

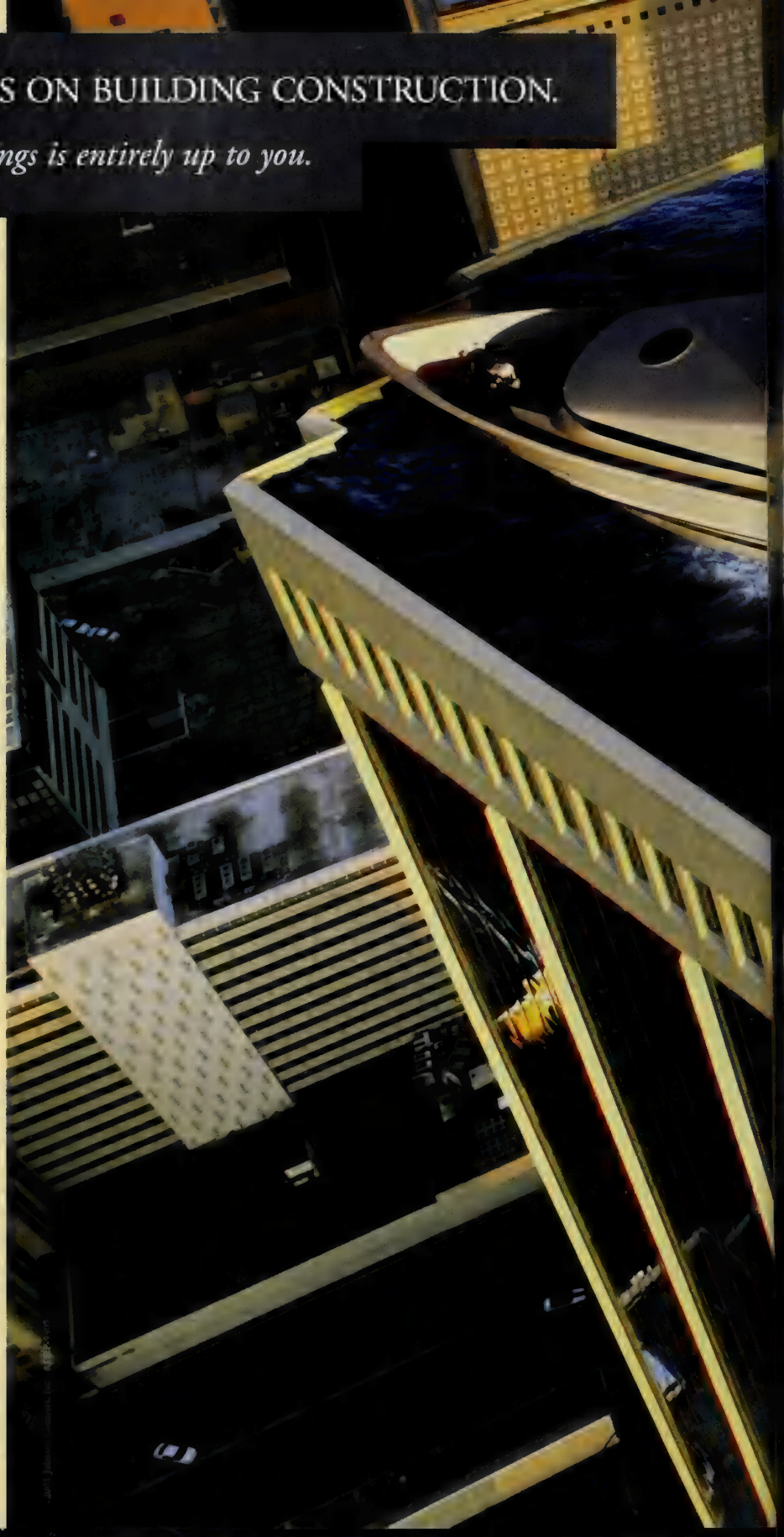
The Ethereal Theatre featured in Archrecord2 in September 2001 should also have been credited to undergraduate Temple University students Cristina Savarese, Eun Kang, Joy Charleston, Adam DiAngelo, Andrea Ostrovsky, Daniel Wallace, Matthew Finlay, Michael Sindlinger, Susan Zoerkler, Edward Cotton, Chen Ho, Soyon Kim, Marcello Crestani, Natsuko Ando, Chio Hsu, and Mary Yates. The photo on the bottom of page 154 of the September Escher GuneWardena's Electric Sun III story is upside down and should have been credited to John Ellis. The SAP Headquarters featured on page 104 in October neglected to credit David W. Gomez, AIA, the project manager for HLW International; Tim Schenck should have been credited as structural engineer.

E-mail your letters to Robert Ivy at rivy@mcgraw-hill.com.

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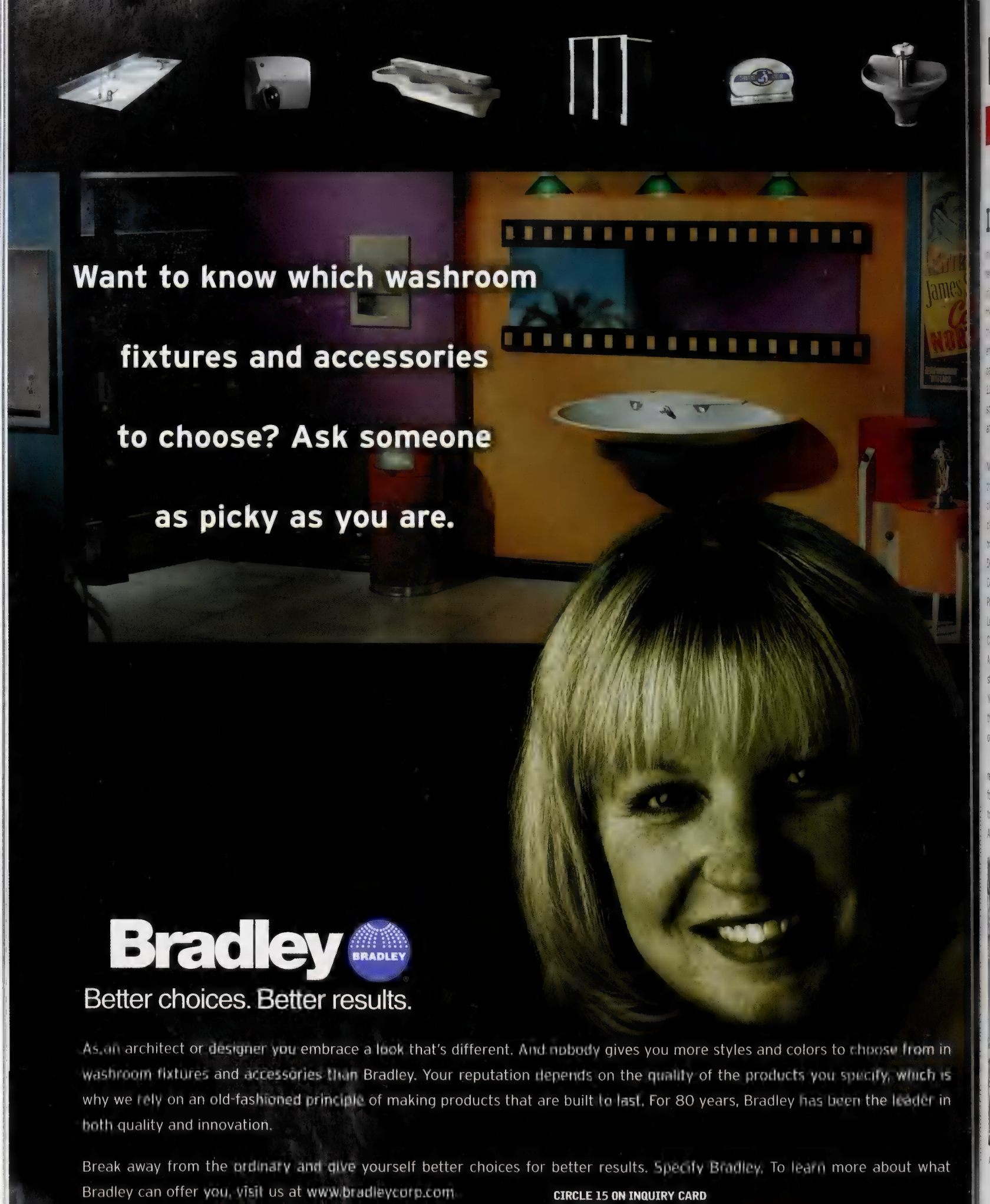
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Record News

Highlights Rebuilding subways p. 34
On alert for info requests p. 37
More news p. 38

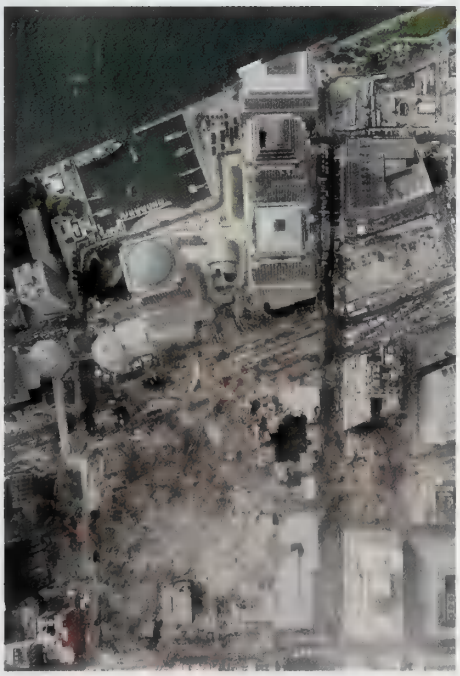
SPECIAL REPORT

Intricate WTC Cleanup to Continue for Months

In the wake of the September 11 terror attacks in New York, hundreds of workers swarm over the site of the former World Trade Center as the massive recovery and cleanup effort progresses. Officials anticipate that removing the estimated 1.2 million tons of rubble from the site will take 8 to 14 months, although they hope it will be shorter.

LZA/Thornton-Tomasetti, the New York engineering firm leading the structural inspection and cleanup at Ground Zero, is working closely with a team of four subcontractors hired by New York City's Department of Design and Construction: Turner Construction/Plaza Construction, Bovis Lend Lease, Tully Construction, and AMEC Construction Management. Assisting LZA are many of the major structural engineering firms in New York City, an effort coordinated by the Structural Engineers Association of New York (SEAoNY).

What was at first a desperate rescue operation has evolved into a focused, round-the-clock endeavor to remove rubble quickly and safely. As RECORD reported in October, each contractor is responsible for removing debris from a quadrant of the site. The work is painstaking, deliberate, and dangerous. Movement of equipment and people is coordinated carefully so that the enormous mounds of rubble do not shift or collapse. At press time, hot spots were still prevalent and needed to be hosed down when uncovered. Debris removal is halted when human remains are found and recovered. An acrid, burning odor persists at the site, and recovery workers wear respirators to protect them from contaminants and particles resulting from the fires. Though the smell drifts throughout lower Manhattan, air quality outside of Ground Zero has been deemed safe by federal officials.



An aerial view of Ground Zero, September 23, with the green roofs of the World Financial Center.

The rubble, plucked delicately from the site by cranes, backhoes, and other heavy equipment, is taken by barge to Fresh Kills Landfill on Staten Island, where it is searched for evidence and human remains. Much of the structural steel from the twin towers will be melted down and recycled, though the forensic team assembled by the American Society of Civil Engineers hopes to examine steel from the site to gauge its performance during the fires. These inspections could impact future steel designs or fire systems. To date, however, no specific steel specimens had been selected for forensic analysis.

Structural engineers at the site are showing ingenuity as they toil in war-zone conditions. Steel box columns from the wreckage, for instance, have been fashioned into bridge girders to move a crane over the debris, says Dan Cuoco, managing principal of LZA/Thornton-Tomasetti. *Deborah Snoonian, P.E.*



As shown in mid-October, cleanup work continued six weeks after the attack.

GENSLER ASSISTS 24 WTC CLIENTS FIND NEW SPACE, BECOME OPERATIONAL AGAIN

The New York office of Gensler has 24 clients that were located in or immediately near the World Trade Center (WTC) towers. Realizing a need to provide client services beyond strictly design in the wake of the disaster, Gensler has assisted those clients to once again be "business operational."

Gensler's WTC clients, including Lehman Brothers, Morgan Stanley, Merrill Lynch, and Carr Futures, ranged from 50- to 60-employee concerns with 10,000 square feet of space to companies with more than 1 million square feet. For those clients, Gensler has helped obtain new office space in Manhattan, Connecticut, or New Jersey and find necessary office furniture, fixtures, and products at a reasonable cost for them to resume work in the short-term.

"We're scrambling for our clients right now," says Joseph Brancato, AIA, vice president and managing principal at Gensler. "The real value (our clients) are getting are options and our ability to quickly evaluate—service, speed, and knowledge."

Gensler employees have been busy with this task, working evenings and weekends since the disaster. Brancato says, "Seeing the need for our services has helped keep our morale high." *John E. Czarnecki, Assoc. AIA*

SPECIAL REPORT

Significant damage to subways near WTC

Amid the rubble of the World Trade Center, transit engineers are facing immense challenges below grade in assessing and shoring up damaged subway lines.

With steel beams and debris from the destroyed buildings skewering the tunnel and stations of the No. 1 and 9 subway lines, more than a mile of the route must be completely rebuilt. About 575 feet of the 1/9 tunnel collapsed in two places, while hundreds more feet of the tunnel are structurally unsound. About 200 feet north of the 1/9 Cortlandt Street Station, where the tunnel ran alongside the eastern edge of 7 World Trade Center, a 220-foot section will be temporarily filled with concrete to support the street above. Transit officials say work to repair the 1/9 line from south of Chambers Street to its end, at South Ferry Station, could take more than two years.

At press time, cost estimates to rebuild had not been announced, but assessment of damage continued. Emergency work—to shore up the tunnel and stations, stabilize the road bed above, and plug potential Hudson River flood routes within the WTC "bathtub" basin—will cost an estimated $2 million to $4 million.

Besides damage to the 1 and 9 lines, the N and R lines are out of service until at least next spring. A section of the facade from Tower Two has punctured the tunnel near the N/R Cortlandt Street Station. Through October, engineers from Slattery Skanska and Mueser Rutledge Consulting Engineers worked with crews to stabilize Church Street above the N/R tunnel, to provide support for the heavy demolition and excavation equipment that is removing debris from the collapsed buildings.

PATH train service has been suspended from the WTC site to New Jersey due to damaged station platforms and tunnels.

When rebuilt, some subway and train lines could be reconfigured to create better linkages with buildings that may rise on the WTC site. *William Weathersby, Jr.*



The 1/9 (top two) and N/R (above) subway tunnels incurred significant damage on September 11. Cost estimates to rebuild have not been announced.

PHOTOGRAPHY: COURTESY NEW YORK CITY TRANSIT

New York design, construction, and preservation groups join forces for lower Manhattan

A number of organizations involved in design and construction in New York have quickly mobilized to consider the future of lower Manhattan.

The New York City Infrastructure Task Force (www.nycrebuild.org) has formed as a coalition of private sector resources to develop a vision for rebuilding New York. The task force is charged with informing and assisting elected leaders and providing professional advice and counsel on the rebuilding process, resource availability, issues of liability and jurisdiction, emergency response procedures, and building codes and utilities. The task force executive committee includes Bob Prieto, chair of Parsons Brinkeroff; Marilyn Jordan Taylor, FAIA, chair of Skidmore, Owings & Merrill; Daniel Tishman, president and CEO of Tishman; and Lou Coletti, chair and CEO of the Building Trades Employers Association.

The task force is "an opportunity to put together the best minds in the city and think about principles to guide the future of lower Manhattan," says Taylor. "It's an extremely fluid situation right now."

The New York chapter of the American Institute of Architects (AIA/NYC) (www.aiany.org) has organized a volunteer action committee to mobilize local AIA members to respond to immediate and long-term needs. The action committee is in collaboration with the New York City Partnership, the Real Estate Board of New York, the New York Building Congress, the Structural Engineers Association of New York, and the New York Association of Consulting Engineers. The committee is providing base building and building operation assessments, pro bono space-planning services, and assistance in the development of appropriate temporary zoning and code regulations. AIA/NYC has organized at least 150 individual architects and firms to volunteer. "What I'm touched by most are the sole practitioners and smaller practices that are volunteering," says Fredric Bell, FAIA, AIA/NYC executive director.

Five historic preservation organizations have joined to have a unified voice in the rebuilding of lower Manhattan, which includes 67 designated city landmarks south of Chambers Street. The World Monuments Fund (see story, page 44), the National Trust for Historic Preservation, the Preservation League of New York State, the Municipal Arts Society, and the New York Landmarks Conservancy have each given $10,000 in seed money to co-sponsor the Lower Manhattan Emergency Preservation Fund. *JEC*

Architects that worked near World Trade Center return to practice, keeping data off-site

Architecture firms that were in or near the World Trade Center are rebuilding their practices, despite the difficulty of the past two months. The most important lesson that these firms offer is the need for off-site secure storage of data.

"Off-site record retention has always been really important, but now the importance is crystal clear," says Dave Hannaford, chief financial officer and principal at Mancini Duffy. His firm's 140 employees all safely escaped their office in Tower Two [OCTOBER 2001, page 26] and have returned to work in a new office. Mancini Duffy had data stored on tapes in a safety deposit box in a bank vault in Manhattan, but the key to the safety deposit box was in the firm's office. A locksmith was hired to open the box to get to the firm's data.

Gruzen Samton's office, across the street from the World Trade Center in the third and fourth floors of 90 West Street, was destroyed by fire and smoke damage. All 120 employees survived the disaster, but all paperwork, drawings, and slides were destroyed. Peter Samton, FAIA, noted that his Rolodex, of which he only had a hard copy, was destroyed. All of the firm's data backup was kept on the premises in three safes. Only one of the safes was designed to withstand extreme heat—materials in that safe were salvageable, but a crowbar was needed to open the partially melted door. Backup tapes in that safe, which were slightly damaged, were taken to a data recovery center to salvage information. The firm has also obtained backup data from its consultants.

"I don't know how cautious one can be," says Peter Samton, FAIA. He notes the importance of business interruption insurance, which has covered "whatever it takes to get back into business" for his firm.



Firm leadership at Gruzen Samton: (from left) Jordan Gruzen, FAIA, Peter Samton, FAIA, Mary Burke, AIA, Gerald Varisko, AIA, and Michael Gelfan, AIA.

Skidmore, Owings & Merrill's Wall Street office is only two blocks from Ground Zero. SOM employees returned September 17 to an office without phone service, T-1 lines, or air-conditioning. One SOM architect, Arkady Zaltsman, AIA, who was going to the World Trade Center that morning to meet with a client, died in the disaster. Despite the hardship, SOM is committed to staying in the financial district. "Returning to work that Monday was a very anguishing process," says Marilyn Jordan Taylor, FAIA, chair of SOM. "But we're very proud of our determination to resume our practice and move forward." *JEC*



The Wintergarden at the World Financial Center (above) and the Bankers Trust building (right) sustained considerable damage on September 11.

WTC neighboring buildings inspected; some require extensive reconstruction

In the weeks since the collapse of the World Trade Center towers, safety inspections and recovery efforts have been completed in tandem. Structural inspections of some 400 buildings in the area were conducted by the Structural Engineering Association of New York (SEAoNY) [OCTOBER 2001, page 27] in conjunction with ZA/Thornton-Tomasetti. "The SEAoNY volunteers were instrumental in getting the inspection work done so quickly," says Dan Cuoco, president of LZA.

Buildings surrounding the WTC site that sustained significant damage include Bankers Trust (left), N.Y. Telephone, and 90 West Street. One World Financial Center is scheduled to reopen November 19, but the Wintergarden and its flanking towers, Two and Three World Financial Center (far left), may take up to a year to reopen. One Liberty Plaza, a 53-story building that was used to support emergency operations post–September 11, was to reopen the last week of October. A 1907 Cass Gilbert building [see story above], 90 West Street has been deemed structurally sound but has significant interior damage due to fire and debris. *DS and JEC*

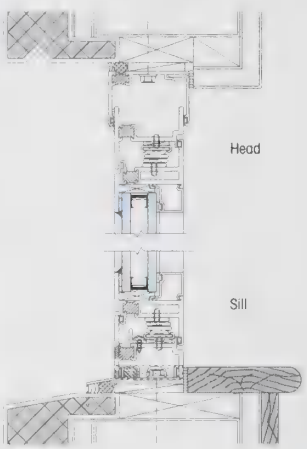


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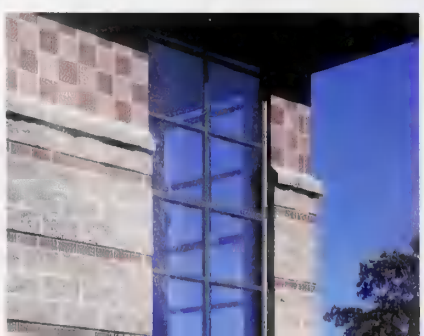


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SPECIAL REPORT

More than two years and $520 million needed to rebuild damaged portion of Pentagon

Rebuilding Wedge 1 of the Pentagon—the newly renovated area that sustained the most damage during the September 11 terror attack [OCTOBER 2001, page 23]—will cost $520 million and will take up to two-and-a-half years to complete, according to estimates from the Pentagon Renovation Office. London-based design-build firm AMEC was awarded a modification on their existing contract for the Wedge 1 renovation for the new work. RTKL of Baltimore won a $20.8 million contract to redesign interior spaces for the repaired area. The RTKL contract includes $1.6 million to assess the damaged structure.

Restoring Wedge 1 involves first rebuilding its shell—fixing damaged columns, floor slabs, and walls. The building's foundation remained intact and will not require extensive repair. The limestone facade will be replaced using stone from the same Indiana quarry that the original Pentagon limestone came from. Once the shell is repaired, core work and tenant fit-out will proceed.

The shell work will take approximately 18 months to complete, according to Lee Evey, manager of the Pentagon renovation program, and interior work could last up to two years. Evey emphasized that the construction team will make every effort to shorten this schedule. The damaged area will be mapped and measured using laser imagery and digital photography, which will quicken the pace of repair, he says.

One of the biggest challenges of the cleanup effort so far has been battling mold and mildew that resulted from the thousands of gallons of water used to fight fires after the attack. Large dehumidifiers have been moved into the Pentagon to combat mold and mildew growth as repairs are underway.

At press time in late October, much of the crash debris had been removed from the site, and small areas of Wedges 1 and 2 were reopened for occupancy. Domestic water lines, fire pumps, and sprinkler systems were restored, and about half of Wedge 1 had electrical power. Air quality has been monitored throughout the Pentagon following the attacks, and no problems have been found.

The previously planned renovation of Wedges 2 through 5 will continue on schedule, with some modifications to phasing of activities. *DS*



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While a relatively small portion of the Pentagon was destroyed on September 11, the estimate to rebuild is $520 million.

AIA members alerted to unusual requests for building information

Citing reports of unusual requests for building plans from several architecture and engineering firms, the American Institute of Architects (AIA) joined the National Society of Professional Engineers and the General Services Administration (GSA) in issuing an advisory letter to their members.

Reports of the unusual requests first surfaced in the days surrounding September 11. A large Manhattan firm received e-mail requests for plans of some of the firm's major public or government buildings from people who purported to be Pakistani students. The firm notified the AIA and the Federal Bureau of Investigation (FBI).

The letter subsequently released on the AIA's Web site, www.aia.org, tells of the reported incidents and says that "it is appropriate to exercise reasonable caution and good judgment in reviewing each request before providing documents or plans." The letter also provides a link to a form for reporting suspicious incidents directly to the FBI. A copy of the AIA's letter and a link to the report form can be found at www.architecturalrecord.com.

James Dinegar, the AIA's chief operating officer, was pleased with the letter's initial reach and response. "The letter spread far wider than we anticipated," Dinegar said. "We understand that GSA has received up to 10 specific responses, which it has not shared (with the AIA), nor have we asked the GSA to share the details."

The advisory letter was not intended to scare firms, according to Dinegar, who said the higher state of alert should not interrupt the free flow of information within the architectural profession. ***Kevin Lerner***

WWW For continuous updates on the developing story at the World Trade Center, go to www.architecturalrecord.com to find a special section including:

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OFF THE RECORD

[redacted] with [redacted] has been selected to design the new $122 million main branch of the Minneapolis Public Library.

The completed Milwaukee Art Museum addition by [redacted], with a dramatic brise-soleil, opened to the public October 14.

[redacted], FAIA, has been selected to design a 102,000-square-foot addition to the Cleveland Museum of Art.

The Sterling and Francine Clark Art Institute chose Tadao Ando to design a new 85,000-square-foot building with exhibition and academic spaces for its campus in Williamstown, Mass.

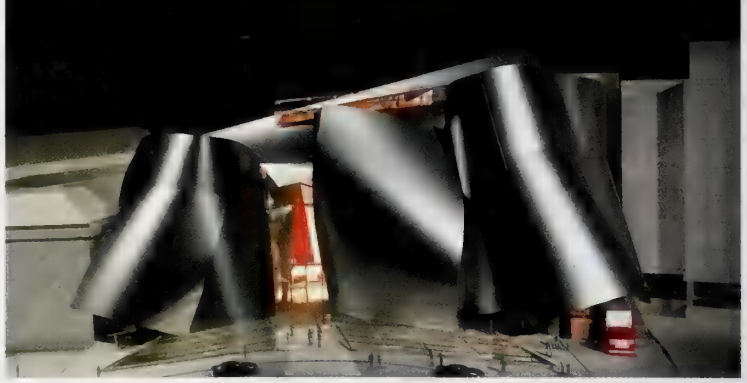
[redacted] has been appointed the new director of the Canadian Centre for Architecture (CCA) in Montreal. Dr. Olsberg joined the CCA in 1989 as its first head of collections and was named chief curator in 1991 and interim director last June.

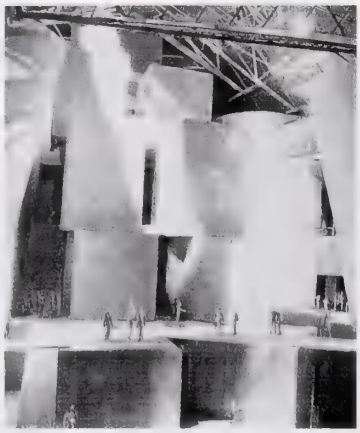
Vienna's [redacted] [this issue, page 108] will design a $30 million, 50,000-square-foot addition to the Akron Art Museum. Coop Himmelb(l)au was chosen in a competition that included two finalists: Snøhetta of Oslo and UN Studio in Amsterdam. This will be the firm's first public building in the U.S.

Finalists to design a 45,000-square-foot addition to the Queens Museum of Art in New York are [redacted] Architects, Culver City, Calif.; Evidence Design, Brooklyn; [redacted] Architects, New York; [redacted] Meyers Architects, New York; and Salazar Davis Architects, New York. A winner will be selected in December.

Ezra Ehrenkrantz, FAIA, a partner in the New York firm Ehrenkrantz Eckstut & Kuhn Architects, died of cancer September 22 at age 69.

Unanimous approval for Gehry's Corcoran





Gehry's refined design (above) has a soaring interior space (left).

Gaining approvals for buildings in Washington, D.C., especially unapologetically modern structures, can be notoriously contentious. That's why it was a bit of a surprise that a dramatically refined scheme for an addition to the Corcoran Gallery and College of Art in that city by Frank O. Gehry, FAIA, received unanimous approval by the Commission of Fine Arts on October 18. Gehry Partners can now move ahead with design development for the $120 million wing, to be built directly behind the gallery and across the street from the national office of the American Institute of Architects on New York Avenue. Construction is expected to start in 2003, with completion by 2006.

Gehry won the competition in 1999, but he was initially reluctant to even enter. "I thought, 'Me and Washington? It ain't gonna work.' But we got here," he told the commission before it approved his design. Gehry altered his design, which initially had a bundle of about a dozen ribboned masses of glass and metal. The refined design now has fewer, broader, and more sweeping curves that better relate to the original 1897 Corcoran building's curve at the corner of 17th Street and New York Avenue.

"It is unconventional and challenging," commission chair J. Carter Brown said in describing Gehry's design. "But in the context of Frank Gehry's work, it is very calm, very pure, almost simplified. It will be a great addition to that block."

The 145,000-square-foot addition, which more than doubles the Corcoran's space, will include a new main entrance and new gallery space. Studios and classrooms will be added for the college in mostly underground space with skylights for natural light. The original Corcoran building by Ernest Flagg will also be renovated. *JEC*

2001 Aga Khan Awards announced





His Highness the Aga Khan announced the recipients of the 2001 Aga Khan Award for Architecture in a ceremony at the historic Citadel of Aleppo in Syria on November 6. The award has a triennial prize fund of $500,000.

The Aga Khan Award for Architecture was established by the Aga Khan in 1977 to identify and encourage building concepts that address the needs and aspirations of Islamic societies. The award recognizes exemplary architecture in the Islamic world in contemporary design, social housing, community improvement and development, restoration, reuse, area conservation, and landscape design and improvements to the environment. This year marks the eighth cycle of the triennial prize.

Nine projects were awarded this year: New Life for Old Structures, various locations, Iran; Ait Iktel, Abadou, Morocco; Barefoot Architects, Tilonia, India; Kahere Eila Poultry Farming School, Koliagbe, Guinea; Nubian Museum, Aswan, Egypt; SOS Children's Village, Aqaba, Jordan (right top); Olbia Social Centre, Antalya, Turkey; Bagh-e-Ferdowsi, Tehran, Iran; and Datai Hotel, Pulau, Langkawi, Malaysia (right bottom). A special Chairman's Award was presented to Sri Lankan architect Geoffrey Bawa. Architects on the Master Jury were Darab Diba of Tehran, Dogan Hasol of Istanbul, Ricardo Legorreta of Mexico City, Glenn Murcott of Sydney, and Raj Rewal of New Dehli. *JEC*

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CIRCLE 18 ON INQUIRY CARD

Milwaukee cathedral renovation draws conservative criticism

A major renovation of the 153-year-old Cathedral of St. John the Evangelist in Milwaukee has sparked debate over bishops' rights and interpretations of Second Vatican Council reforms. Construction continues, despite opposition from conservative Catholics and one Vatican-based Cardinal.

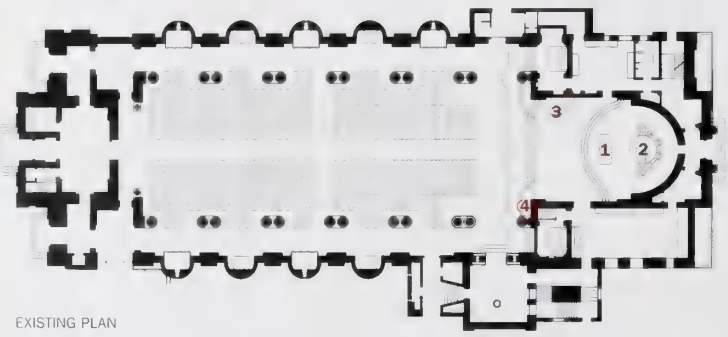


The new interior will have chairs surrounding the altar.

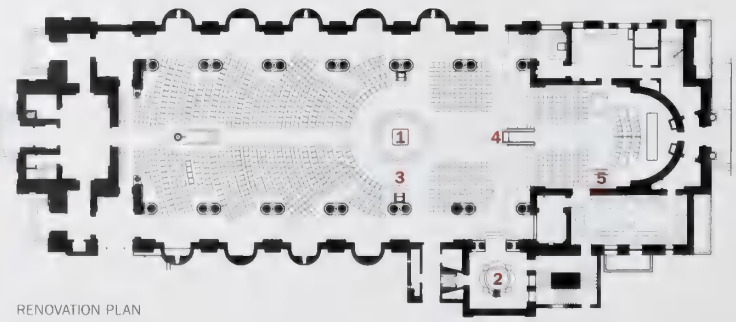
The $4.5 million cathedral renovation is part of a comprehensive $10.5 million renovation of church-owned buildings on the cathedral block in downtown Milwaukee. Designed by James W. Shields, AIA, of the Milwaukee office of Hammel, Green and Abrahamson, the renovated interior is intended to better reflect post–Vatican II concepts of worship. The cathedral will be adapted from a traditional layout with primarily two spaces—the nave with rows of fixed pews and the chancel with an altar for clergy and choir—to a single room for worship with the altar in the middle surrounded by moveable oak chairs. In this configuration, more worshipers will be closer to the altar. The cathedra, or throne for the bishop, will be placed near the new altar. The tabernacle, which contains the Eucharistic hosts, will be moved from the chancel to a side chapel. An organ console will be in the chancel.

A conservative group of Milwaukee Catholics has opposed the renovation, calling it a "destruction" of the building, and petitioned the church to refurbish in its current configuration instead. The group was aided by a conservative San Antonio foundation and discovered a sympathizer in Cardinal Jorge Medina, prefect of the Congregation of Divine Worship and Discipline of the Sacraments. Medina wrote to Milwaukee Archbishop Rembert Weakland on June 30, noting that moving the altar and placing an organ in the chancel would not "adequately respect the hierarchical structure of the church of God that the cathedral by its scheme is to reflect." The letter is inconsequential, though, because Medina does not have jurisdiction over Weakland. Renovation work continues, with completion set for spring 2002.

Church scholars believe the opposition may be directed, in part, to Weakland himself, who is one of the leading liberals in the church. *JEC*



EXISTING PLAN

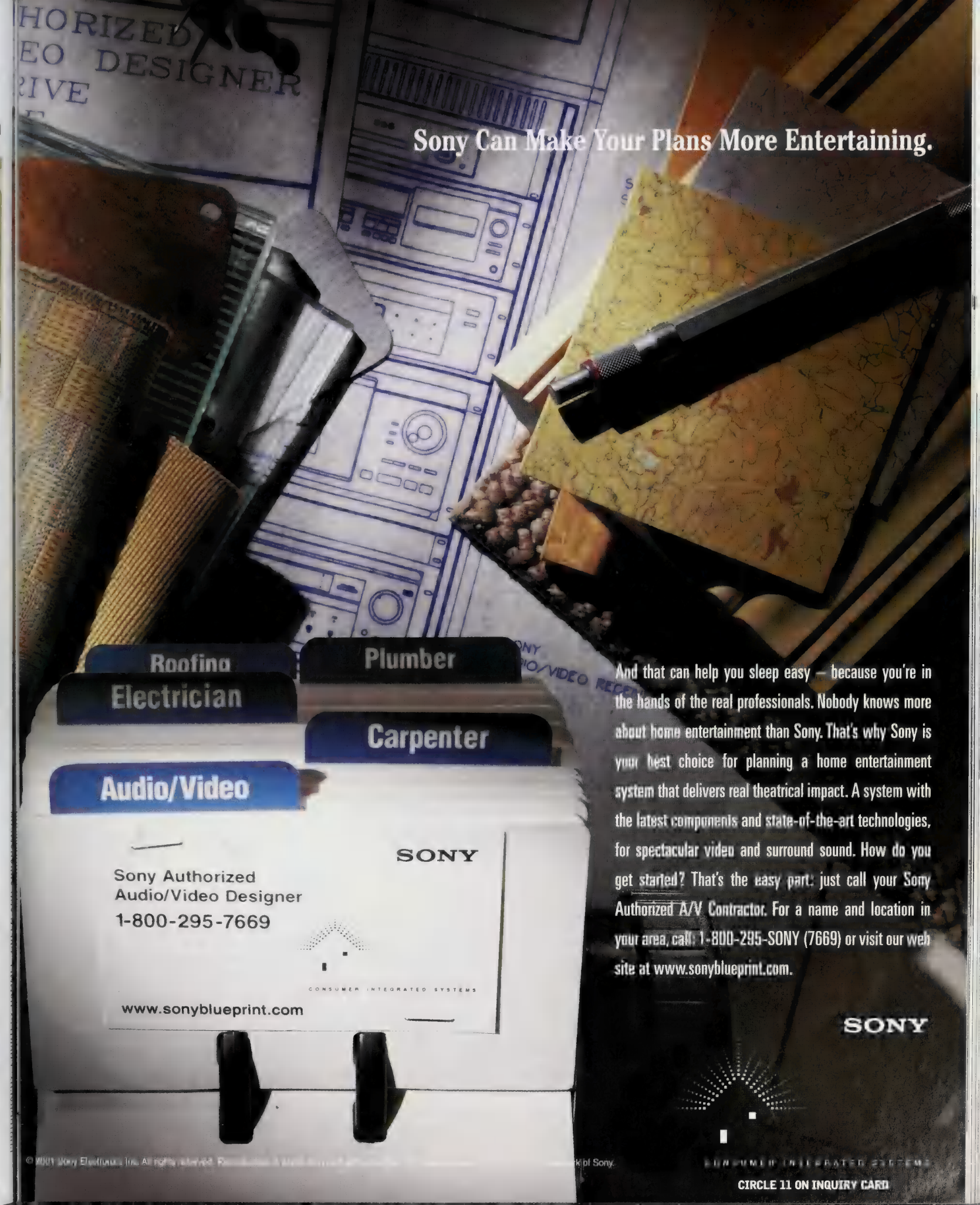


RENOVATION PLAN

1. *Altar*
2. *Tabernacle*
3. *Cathedra*
4. *Pulpit*
5. *Organ console*

Alterations at the Cathedral of St. John the Evangelist call for the altar to be placed near the center of the church, with moveable chairs replacing fixed pews. The chairs could be arranged in multiple configurations.

PHOTOGRAPHY: COURTESY HAMMEL, GREEN AND ABRAHAMSON



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CIRCLE 11 ON INQUIRY CARD



CIRCLE 19 ON INQUIRY CARD



Harvard Club members have protested this facade by Davis Brody Bond as inappropriate for the site.

Group of Harvard alums protest clubhouse facade

Every alumni club specializes in the encounter between the present and the past. But at the Harvard Club of New York, the glassy new addition by New York firm Davis Brody Bond has prompted some members to contemplate a particularly architectural form of time travel. They have commissioned facade studies from New York classicist Richard Cameron, AIA, of the Brooklyn firm Cameron, Cameron & Taylor, illustrating how the addition could be clad in the neo-Georgian style of the 1894 clubhouse building by McKim, Mead and White. Excavation is currently underway for the addition between the existing clubhouse and the 1898 New York Yacht Club.

"Brick and limestone means Harvard to a lot of people, not a glass box," says one club member favoring a more historicist facade.

Further, suggests Cameron, the DBB design "is not especially forward-looking. It's a post–Second World War form of Modernism."

Developed by Max Bond, FAIA, a 1955 Harvard grad, with DBB partner Christopher Grabé, AIA, the eight-story, 34,000-square-foot expansion is scheduled for completion by the end of 2002. It will include 18 new guest bedrooms, two international squash courts, a ballroom, an audio-visual facility, and ADA-compliant renovations to the existing building. The addition was approved by the New York City Landmarks Preservation Commission in March and the local Manhattan community board.

Grabé describes the addition's geometrically complex facade as "an interweaving of the old building and the new project. In scale, proportion, and rhythm, as well as in its limestone detailing, it relates to the existing clubhouse. The goal of the design is to honor the buildings on either side but not to mimic them."

A group of club members, called the Committee for HCNY Choice, unsuccessfully filed suit with the New York State Supreme Court last June to delay ground breaking, alleging violations of club bylaws in the discussion of the addition. Richard Ottinger, an attorney retained by the dissenters, said the group may attempt further legal action "to prevent construction from continuing." *Thomas de Monchaux*

National Building Museum hosts events in terror aftermath

The National Building Museum in Washington, D.C., will host events that will explore the impact on the built environment of the attacks on September 11 . A symposium, "The Future of the Skyscraper," will be held Friday, November 9, at 6 P.M. Speakers include Leslie Robertson, FASCE, the structural engineer for the World Trade Center; Paul Katz, AIA; Bruce Fowle, FAIA; Witold Rybczynski; and Robert Campbell, FAIA, contributing editor for ARCHITECTURAL RECORD and architecture critic for the *Boston Globe*. A symposium, "Freedom without Fortresses? Shaping the New Secure Environment," cosponsored by RTKL and ARCHITECTURAL RECORD will be held Tuesday, November 27, at 6:30 P.M. Moderated by Robert Ivy, FAIA, editor in chief of ARCHITECTURAL RECORD, speakers will include Daniel Patrick Moynihan, former U.S. senator from New York; architect and planner Jonathan Barnett, FAIA; and the executive architect for the reconstruction of the Pentagon, David Vere Thompson, AIA, of RTKL. An exhibit, "Twin Towers Remembered," will be on display November 10 through March 10, 2002. For more information, visit www.nbm.org. *JEC*

PHOTOGRAPHY: COURTESY DAVIS BRODY BOND



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CIRCLE 100 ON INQUIRY CARD

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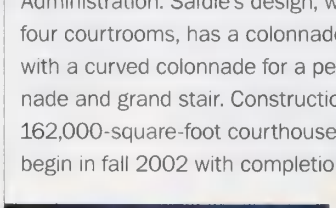
Historic Lower Manhattan on Most Endangered Sites list The World Monuments Fund has released its 2002 World Monuments Watch List of 100 Most Endangered Sites, and has added a 101st—Historic Lower Manhattan. The biennial list is a call for international attention, an attempt to raise funds to save cultural monuments and heritage sites. Historic Lower Manhattan was added as an emergency measure after the September 11 attack. One of the most important historical areas in the United States, Historic Lower Manhattan has more than 65 individual landmarks and historic districts. The 2002 list includes 42 places in Europe, 20 in Asia, 17 in Africa and the Middle East, and 22 in the Americas. See the complete list in "News" at www.archrecord.com.

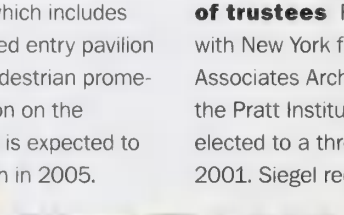




Endangered sites on the World Monuments Fund list include the Uch Monument complex in Pakistan (left) and the Larabanga Mosque in Ghana (above).

Design approved for Safdie courthouse The design concept for a federal courthouse in Springfield, Mass., by Moshe Safdie, FAIA, has been approved by the General Services Administration. Safdie's design, which includes four courtrooms, has a colonnaded entry pavilion with a curved colonnade for a pedestrian promenade and grand stair. Construction on the 162,000-square-foot courthouse is expected to begin in fall 2002 with completion in 2005.





Safdie's design for a federal courthouse in Springfield, Mass.

AIA and McGraw-Hill extend partnership The American Institute of Architects (AIA) and McGraw-Hill, publisher of ARCHITECTURAL RECORD, have extended their existing strategic partnership through 2010. Norbert Young, FAIA, president of the McGraw-Hill Construction Information Group, and AIA Executive Vice President/CEO Norman L. Koonce, FAIA, signed the agreement October 11.

Rosa named curator of architecture and design at SFMOMA Joseph Rosa has been appointed as the Helen Hilton Raiser Curator of Architecture and Design at the San Francisco Museum of Modern Art (SFMOMA). He will begin in that role in January. He has been the curator of architecture at the Heinz Architectural Center at the Carnegie Museum of Art in Pittsburgh for the past two years. Rosa replaces Aaron Betsky, who left SFMOMA in May after seven years to become the director of the Netherlands Institute of Architecture in Rotterdam.

Siegel elected to Pratt Institute board of trustees Robert Siegel, FAIA, a principal with New York firm Gwathmey Siegel & Associates Architects, has been elected chair of the Pratt Institute board of trustees. He was elected to a three-year term that began July 1, 2001. Siegel received his Bachelor of Architecture degree from Pratt in 1962. Pratt has an enrollment of 4,200 in art, architecture, and design.

Gehry on board for affordable housing in Oregon Frank O. Gehry, FAIA, has agreed to design a mixed-use, affordable housing project in Portland, Ore. Planned for the city's burgeoning River District adjacent to downtown, the project will include a Montessori school and approximately 180 units of housing. Developer Homer Williams, who has been responsible for new high-end housing in the River District, is developing the project. Construction is scheduled to begin in early 2003. The budget is estimated at approximately $126 per square foot, a figure less than one fifth that of signature Gehry projects, but 20 percent more than the average Portland affordable housing project.

Brian Libby

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plish something. But there is not yet a mechanism to integrate those fields and reach some kind of understanding. And yet the project will freeze if it is at cross-purposes." To develop a consensus vision he hopes to help organize workshops akin to those of the Mayors Institute of City Design, which exposes political figures to the problem-solving skills of designers and other technical experts. In the meantime, design fields that often compete have come together in a coalition spearheaded by New York City AIA. Including professional organizations for planners and landscape architects as well as the politically active Municipal Arts Society and the public-outreach oriented Architectural League and Van Alen Institute, it is "a loose and wonderful federation," says AIA New York executive director Rick Bell. "The organizations are volunteering their time and services as they offer professional knowledge and expertise."

Is density too risky?

Developing a clear vision for the future of Lower Manhattan may prove a daunting task. Overnight, dispersal and redundancy became the new real-estate zeitgeist. But within weeks, the sensibility began to change, as it became clear that fewer surrounding buildings sustained fundamental structural damage than had been feared, and companies began to reckon with what moving away from the historic fulcrum of finance really meant.

Many firms are returning to Lower Manhattan as both an act of defiance and because fewer business relationships and commuter patterns will be disrupted if they do. "In the short term, it's a devastating blow to the city and downtown's economy," said Carl Weisbrod, president of the Alliance for Downtown New York, a business-improvement organization. "The building blocks—the New York Stock Exchange, NASDAQ, the Depository Trust, the Federal Reserve, the New York Mercantile Exchange—are all back in business and committed to lower Manhattan. In the long term, I have no doubt that New York and Lower Manhattan will emerge better than ever."

But the Trade Center disaster adds to a long list of problems that have long gone unaddressed by local officials. Traffic congestion, poor access to airports and commuter-rail transportation, and lack of quality trading space make the financial district less appealing than it should be. Over the long term, such everyday hassles added to terror-generated fear may make it hard for downtown firms to hire the best staff, which may further propel the urge to disperse outside of the city.

And yet for many, the promise made by the stock exchange's chairman, Richard A. Grasso, to get the floor up and running—and the smooth resumption of trading days after the disaster, even as smoke still billowed from the Trade Center ruins—represented a turning point.

"WE NEED PLACES LIKE LOWER MANHATTAN—IT FUNCTIONS AT A GLOBAL LEVEL."—MICHAEL GALLIS

"Grasso has done a fabulous job," said SOM's David Childs (by cell phone—the firm, two blocks from Ground Zero, temporarily lost telephone, data lines, and air-conditioning). "And he has said the exchange must build." (The firm is designing NYSE's long-planned expansion.) Added architect Hani Rashid, of Studio Asymptote, "Grasso's speech made me aware of how important the locus is, the notion of gathering people—in other words, how important the city is." Rashid's sentiments may prove to be minority ones. Most observers agree that it is too early to say how well New York will recover, and how far the disaster's effects will ripple.

Does downtown matter?

Could the disaster trigger a shift in the nation's financial-services center of gravity? "The forces of decentralization were there well before the buildings became symbolic targets," says Carol Willis, author of *Form Follows Finance*, and head of the Skyscraper Museum, whose temporary home in Lower Manhattan was commandeered for relief efforts. Indeed, the received wisdom prior to the disaster was that capital had left behind such defining artifacts as skyscrapers and trading floors and had become a digitized abstraction, best moved through wires to computer-connected market makers, who could locate themselves unconstrained by traditional urban enticements such as closeness to markets and supply of transportation or labor force.

"POWERFUL PEOPLE ARE INVOLVED . . . BUT THE PROJECT WILL FREEZE IF IT IS AT CROSS-PURPOSES."—ALEX WASHBURN

Rashid has made his own contribution to the trend by designing a "virtual" counterpart to the real stock exchange. Yet he argues for a hybridization of the real and the virtual. "Rather than build another world's highest skyscraper, the tragedy strikes me as an opportunity to build a new urban center linked to information technologies," he says. "People need to meet to discuss important issues—and cities of the future are already responding to the hybrid potential."

That hoary reason for downtown—to encourage interaction—may not seem enough when too many people congregated in one place can pose a security risk. But we need to put the utility of a place like Wall Street into perspective, argues Michael Gallis, an urban strategist based in Charlotte, N.C., who at the time of the attack was studying urban-growth patterns in New Jersey. (Full disclosure: The author has performed consulting services for Gallis.) Regionalization of the office market has its place, he says, but, "We do need places like lower Manhattan as region-level hubs. Manhattan has additional cultural, social, economic, and institutional dimensions that allow it to function interactively at a global level. That's why the attack has seemed so paralyzing not just to New York but to the world."

Rapid reconstruction of lost space may restore the vitality of downtown, and the size of the American economy may assure the New York region's role as the world's center of finance. But if capital is as mobile as experts have long told us it is, such an outcome is by no means guaranteed. That direr scenario may better reflect the national implications of the disaster and the rationale behind the call of local and state officials for a whopping $54 billion in federal aid. Understanding the potential future of finance as a "downtown" kind of business may require a much deeper analysis of the future than is contemplated by most redevelopment schemes so far proposed.

While electronic competitors call NYSE's trading floor a "single point of failure," susceptible to attack, the well-documented vulnerabilities of all-electronic commerce seem to have been forgotten. No one has really taken the time to wonder what kinds of physical spaces might augment electronic ones. At which points in the vastly complex dealmaking, banking, and brokerage businesses are person-to-person interactions useful—and what form can they take compared to what exists now? What combination of technology and human skill is required to understand fast-breaking business developments? It seems inconceivable to contemplate such abstract notions while the grim demolition and recovery of human remains continues, but such urban soul searching may be necessary to create a genuinely vital future for lower Manhattan and the nation's financial business. ■



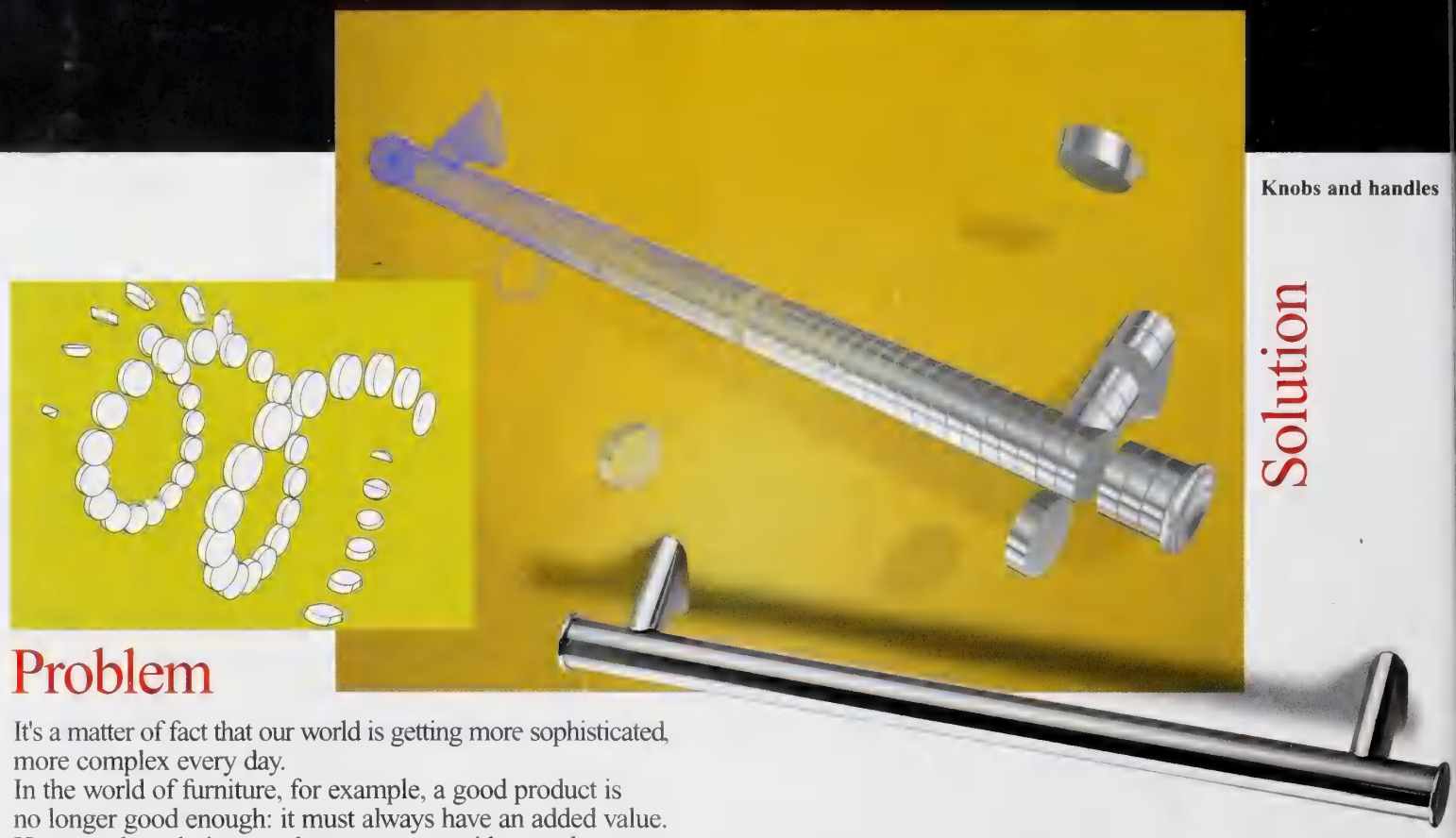
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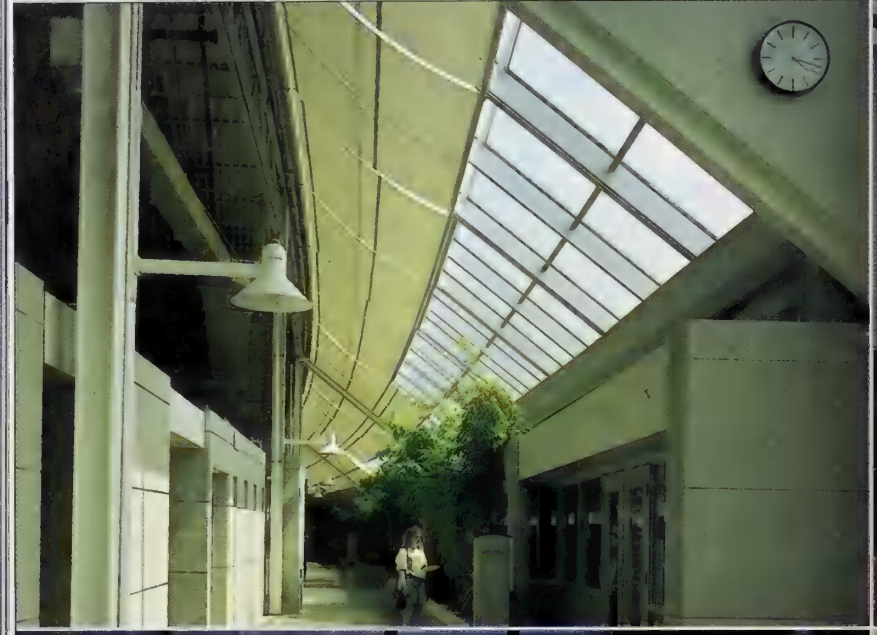








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Dates & Events

New & Upcoming Exhibitions

Tadao Ando, Architect
St.Louis
Through December 30
A rare opportunity to experience the work of this self-trained Japanese architect through models, drawings, and photographs. Featuring 17 projects from Japan, the installation also includes several full-scale architectural elements and a reflecting pool. At the St. Louis Art Musuem. Contact 314/721-0072.

Vital Forms: American Art and Design in the Atomic Age, 1940–1960
New York
Through January 6, 2002
One of the first exhibitions to survey the use and influence of organic forms upon visual media. With more than 250 objects on display, the exhibition explores a multitude of mediums including painting, sculpture, clothing, architecture, industrial design, jewlery, and furniture. At the Brooklyn Museum of Art. Contact www.brooklynart.org.

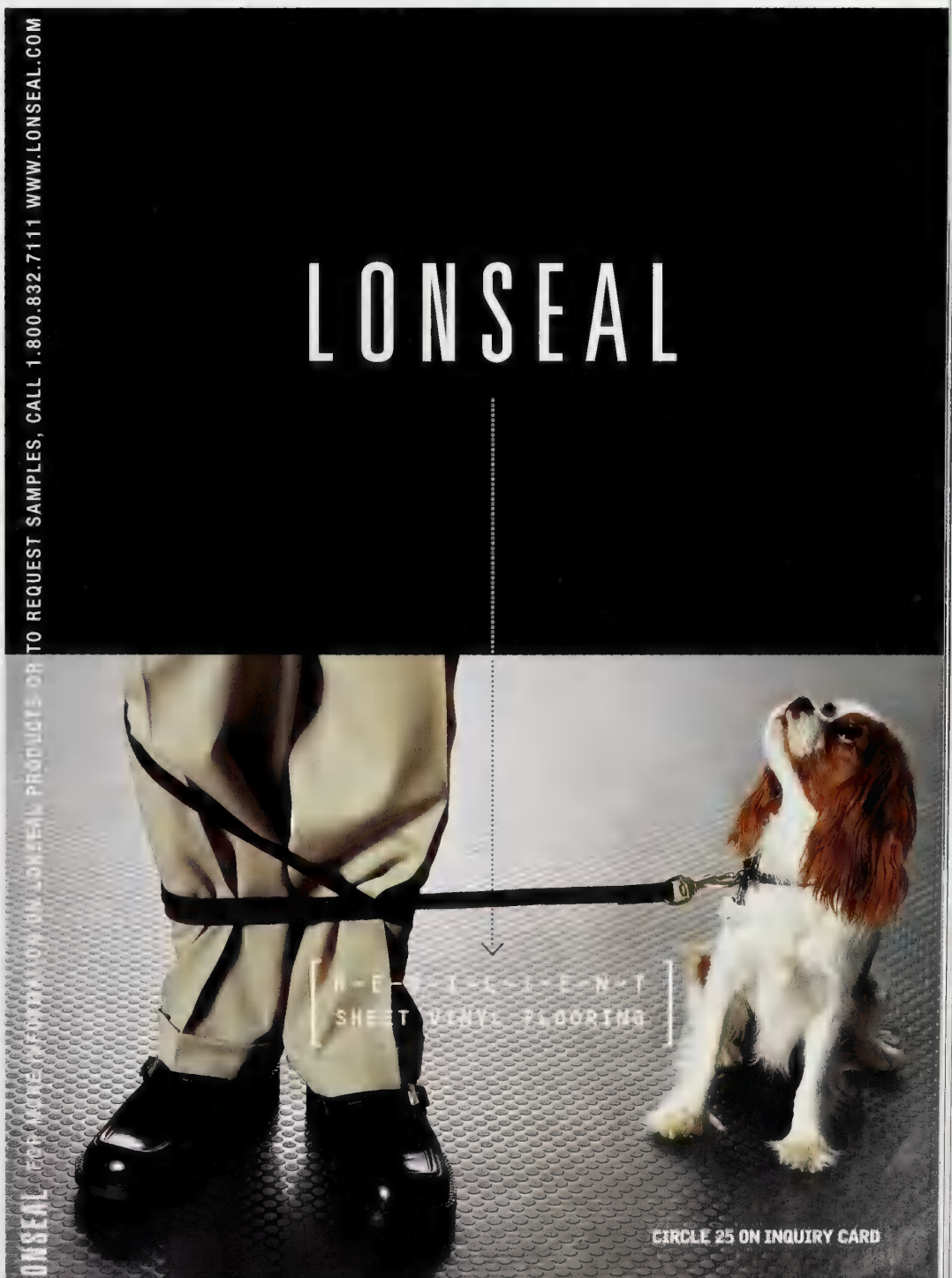
Steven Holl: Parallax
Rome
October 20–January 13, 2002
Steven Holl complements his most recent publication by showing a similar group of projects in this exhibition. So similar, in fact, that the same title, *Parallax*, is used for both. Holl exhibits his work as first and foremost fantasies, in their wee beginnings as etheral watercolor sketches, study models, and notebook doodles. At the American Academy in Rome. Contact 011 39 06 58461.

Wall House 2: John Hejduk
New York City
November 6–November 30, 2002
Exhibition featuring original drawings and photos of the completed Wall House 2, as well as documentation of the construction process. This house was not realized in Hejduk's lifetime and over 30 years later was built in Groningen, Netherlands. At the Arthur A. Houghton, Jr. Gallery at The Cooper Union. Contact 212/353-4158.

SFMOMA Experimental Design Award
San Francisco
November 9–February 5, 2002
Featuring the work of this year's recipients, Thom Faulders, Donald Fortescue, and Post Tool Design, the exhibition delves into the breadth of material experimentation taking place among architects and designers in the Bay Area. Architectural compositions of wood and typography are reinvented to question notions of space, function, and communication. At the San Francisco Museum of Modern Art. For more information contact 415/357-4000.

Ongoing Exhibitions

Ten Shades of Green
Berkeley, California
Through December 2, 2001



Dates & Events

This exhibition seeks to illuminate the relationship between architecture and nature through a selection of environmentally friendly projects. Organized by the Architectural League of New York. At the Berkeley Art Museum. Contact 510/643-6494.

Perfect Acts of Architecture
Pittsburgh
Through January 6
Features more than 140 drawings and collages on the architectural meditations of architects from the 1970s and '80s, when design was highly theoretical. Includes the work of Rem Koolhaas, Bernard Tschumi, Peter Eisenman, Daniel Libeskind, and Morphosis. At Heinz Architectural Center. Contact stitelert@carnegiemuseums.org.

Monuments and Memory
Washington, D.C.
Through January 13
A timely showcase regarding the memory of nationally significant events and the designs that help create and maintain these memories. Washington-based architects exhibit competition entries for various war memorials, in addition to hypothetical projects. At the National Building Museum. Contact 202/272-2448 or see www.nbm.org.

The Architecture of the American Folk Art Museum
New York City
Through January 13
An installation of a model of the newly designed building by architects Tod Williams/Billie Tsien and a photo essay documenting the construction process, from ground breaking to near completion, of the museum's new site at 45 West 53 Street. At the Lincoln Square Gallery. Contact 212/595-9533 or see www.folkartmuseum.org.

From Arts and Crafts to Modern Design: The Architecture of William L. Price
Washington, D.C.
Through March 24
The first retrospective of the architect's 30-year career features original drawings and furniture designs. Projects include luxury hotels in Atlantic City, midwest train stations, and private residences. At the National Building Musuem. Contact 215/898-7798.

Cesar Pelli: Connections
Washington, D.C.
Through April 28
One of the most comprehensive retrospectives on the life and work of distinguished architect and AIA Gold Medalist Cesar Pelli. Through photographs, photo murals, more than 100 drawings, and 30 original models, the show will explore over a half century of his career, culminating with his most recent work. At the National Building Museum. Contact 202/272-2448.

Mathematica
San Francisco
Through May 5
This Eames-designed exhibit from 1961 showcases mathematics as both a science and a tool for art. Revisited 40 years later, it remains the only Eames exhibit still in existence. Other Eames designs on display include toys, home electronics, and lesser-known furniture. At the Exploratorium. Contact 415/563-7337 or see www.exploratorium.edu.

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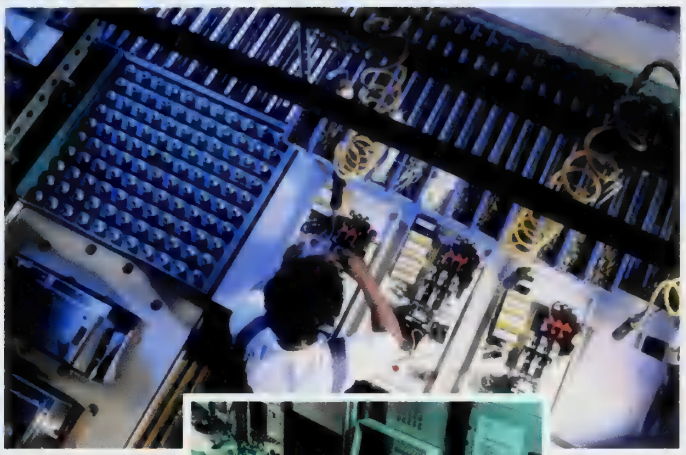


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Millennium Park bronze clock dedicated by Alliance for Downtown New York to David Rockefeller
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Dates & Events

Symposium
Pontresina, Switzerland
November 12–14
A three-day symposium dedicated to the discussion of media, politics, mobility, and architecture in the coming century. Sponsored by the British Council, the forum features an interdisciplinary panel of internationally known architects, theorists, and city planners, including Will Alsop, Wolf D. Prix, Maxwell Hutchinson, and Hani Rashid. Contact 011 41 81 838 8318 or visit www.archisymp.com.

Lars Spuybroek, NOX: Machining Architecture
New York City
November 9
Lars Spuybroek, principal of Rotterdam-based architectural firm NOX, explores the relationship between architecture and computing in the digital age. His current projects include an interactive tower for the city of Doetinchem and an office building in Stratford-upon-Avon. Sponsored by the Architectural League of New York. Visit www. archleague.org for more information.

Tours

Sicily: Archaeological and Architectural Splendors
November 10–20
Hosted by Archetours, the tour combines luxury and learning about Greek, medieval, and even Art Deco architecture. Contact 800/770-3051 or e-mail info@archetours.com.

Conventions

Build Boston
Boston
November 13–15
Brings together over 350 suppliers of building products and services and more than 11,000 architects, engineers, specifiers, contractors, facility managers, and other networking specialists from all over the world. At the World Trade Center Boston. Contact 800/544-1898 or visit www.buildboston.com.

Competitions

The Rome Prize
Deadline: November 15
Qualified architects, designers, landscape architects, composers, scholars, and visual artists are invited to apply for this prestigious award that includes spending six months to two years in Rome. Visit www.aarome.org/ for information.

Jenn-Air Kitchen Competition
Deadline: December 28
Only new or remodeled kitchens that exclusively use Jenn-Air major appliances are eligible. A $10,000 cash prize and a trip to Milan are offered. Contact 612/375-8541 or vmelen@clynch.com.

The NCARB Prize
Deadline: February 1, 2002
In a direct attempt to bring together the academy with professional practice, the National Council of Architectural Registration Boards offers a grand award of $25,000 for a fall 2001 term project that demonstrates this integration. For an entry packet, contact 202/879-0535 or Mbourdrez@ncarb.org.

RIBA Competition
Deadline: February 28, 2002
Invited to explore the possibilities of environmental construction, the Government Energy Efficiency Best Practice Programme sponsored by the Royal Institute of British Architects has launched its fourth open ideas competition to promote sustainable architecture. Open internationally to students and architects, first prize is £10,000. For more information, contact RIBA at 01 13 234 1335.

Send submissions for Dates & Events two months before the event to ingrid_whitehead@mcgraw-hill.com.



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For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

This month, archrecord2 focuses its attention on New York City. First, a profile and design portfolio from a couple of architects who sent their work in over the proverbial transom and caught the eyes of the editors. And then a special report on what young firms in the city are worried about now that they find their hometown forever changed. As always, this section and the Web site offer features in all of our sections: Design, Work, Live, and Talk.

DESIGN

Graftworks: The thought process



Lawrence Blough and John Henle, collectively known as Graftworks, don't usually finish each other's sentences. In fact, they make a point of emphasizing their individuality. But when they do complete each other's thoughts, they do so with a sense of timing that could only come from vaudeville, a subliminal common sense of purpose, or three years of sharing an office on the small side of 1,000 square feet in size.

The last two conditions actually make up a fair description of the state of things at the New York City office of Graftworks, where Blough and Henle have recently hired a third full-time staff member and an additional freelance employee. The two principals met at Davis, Brody, Bond, where Henle had been working for some time and Blough was hired on as a consultant. They hit it off professionally, and, frustrated with the limitations of working at a larger firm, set off on their own. "You take a huge pay cut when you go out on your own," Blough said, "so we're not doing this for the money."

Early projects for the pair came in from "friends of friends," and they consider themselves lucky to have found clients who are willing to be adventurous with designs. Henle and Blough take a research-intensive approach to even the smallest assignments.

"Some architects would think of a staircase as a small project," Henle said, referring to Graftworks' commission to design a new staircase for a New York City loft, "but we put a lot of time just into researching that project."

Indeed, the walls of their studio still display some of that rather diverse research, including a study of the leg movements of spiders.

Graftworks currently has two projects on the boards for one generous client: a mountain house in Vermont and a rooftop garden on the East Side of Manhattan. Building models—both physical and computer-generated—of the former takes up most of the team's energies, though they foresee a time when they will to grow to more than a three-and-a-half-person operation.

Although they are clearly on their way to achieving that goal, no one project



Ranch House Addition, Amagansett, NY, 2001

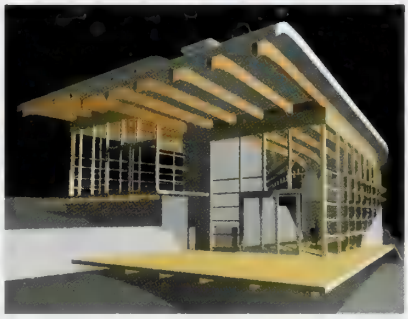
Graftworks. This reconfiguration of a 1960s ranch house into a summer residence took cues from the town's seafaring tradition. The new exterior panels are marine-grade plywood, and some of the windows are ship windows. Work was completed for $75,000.



(continued from page 59) **has yet represented a huge breakthrough for the firm. However, they recently completed an addition to a house in Amagansett, N.Y., that tested their patience (a difficult contractor) and their ingenuity (a tiny budget). As they do for all of their projects, Blough and Henle initiated the design process with research.**

"The site was not at all far from the ocean," Henle said, "and the town has this real fishing tradition ..."

"... that really inspired our thinking and resulted in some of the nautical details," Blough continued, finishing his partner's sentence without a pause. Go to architecturalrecord.com/archrecord2 for more photos, models, and renderings of Graftworks' projects, and to submit your own.



Mountain House,
Stratton, Vt., 2002
Graftworks. The glue-laminated wood beams of this family retreat and ski lodge for a mountainous, wooded site were inspired by technology used in the manufacture and lamination of snow skis.



Hanging Stair,
New York, 2001
Graftworks. A wood and plaster spiral staircase blocked sunlight and views in this loft residence that was once a ballroom. The new, partially suspended stair draws on influences as diverse as boat rigging and bent tubular furniture.

PHOTOGRAPHY: © ROY WRIGHT PHOTOGRAPHY; RENDERING COURTESY OF GRAFTWORKS

WORK

Young firms adjust to a changed city

Muddled optimism and uncertainty loom over young New York City architects—some working only steps away from the World Trade Center site—as they try to endure. It remains unclear how the financial, ideological, and psychological impact of the September 11 disaster will be felt in the next couple of months.

"I've heard of architects who have suffered because their projects or their clients were down there," said James Slade of Cho Slade Architects, "yet I think it affects us not only in terms of clients, but as citizens of the world."

Rebuilding is a major topic of discussion. Offices will have to relocate, buildings will need restoration, and the WTC site itself will be rebuilt. With all of this building imminent, some young firms are confident that clients will eventually turn to them.

"There is going to be something like $100 billion of rebuilding at the World Trade Center site," said Douglas Gauthier of System Architects, "and Kohn Pedersen Fox can't do all of it."

And as conversations of rebuilding slowly slip into the more complex issues of security, scale, and stability, young architects are finding incredible opportunities for collaboration and innovation.

"It isn't always during times of economic boom that the best architecture happens," said Eric Bunge of nArchitects. "Times like this give us a moment to reflect." *Christina V. Rogers*

For more stories about career issues affecting emerging architects, visit architecturalrecord.com/archrecord2.

LIVE

Life beyond the CAD station

There is a common belief that young architects have no lives, that they spend all of their time slaving over design projects or entering minute details into CAD programs for their bosses. But this is an intensely creative group of people, and when they're not shackled to a drafting board or a keyboard, they're expressing themselves. Archrecord2 is proud to provide an outlet for some of this creativity. Drawing, painting, photography, travel writing: We have it all for you to see, and for you to create yourself.

Go to architecturalrecord.com/archrecord2 to see what other architects are doing "on the side," and to learn how to submit your own work.

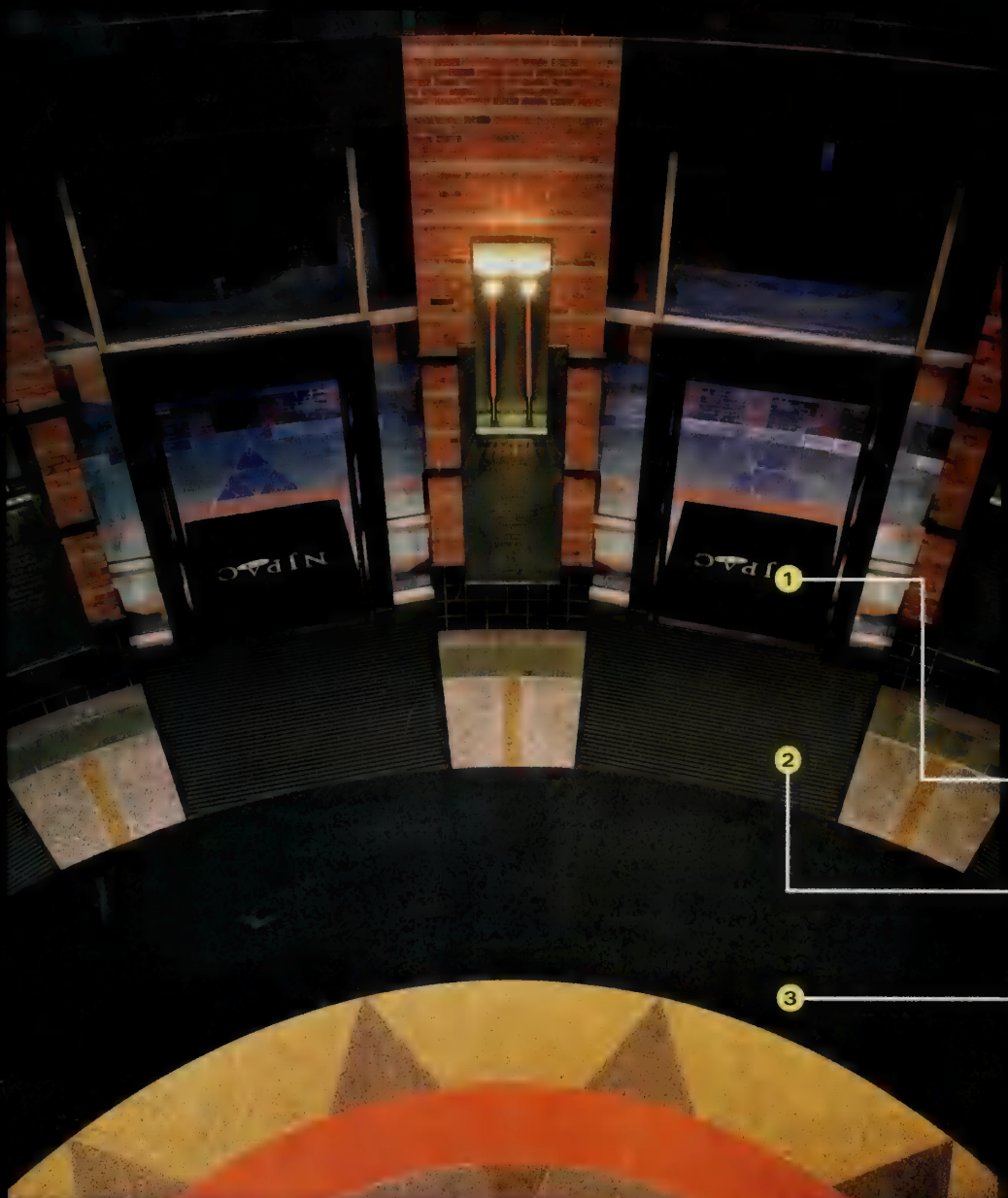
TALK

Talk amongst yourselves

Join the conversation in archrecord2's moderated discussion forum. Current topics include the World Trade Center, books, role models, and answers to your questions about the ARE. New posts appear every weekday, so check back often for the latest gossip, buzz, and insider information, and to add your own.

Go to architecturalrecord.com/archrecord2 to read the latest discussion forum posts or to make your own voice heard.

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TWA's Fight for Flight: what preserves a landmark most?

Commentary

By Suzanne Stephens

The TWA terminal, our Parthenon of early jet flight, was shuttered in early October. So what will happen to the empty landmark, a spectacularly sculptural structure, designed by Eero Saarinen in 1962? Since TWA was absorbed early this year by AMR, the parent company of American Airlines, it was scheduled to vacate its quarters (known also as Terminal 5) in January. After the September 11 attacks, AMR moved up the date to consolidate its operations.

The dynamic structural expressionism of the TWA terminal, with its reinforced-concrete shell composed of four segmental vaults, has made it one of the more astonishing accomplishments of postwar Modernism. But most important, TWA has exemplified the kinesthetic experience of architecture. From curb to airplane, the traveler was immersed in an architectonic sequence that communicated the sense of flight and travel. You arrived at the entrance and were guided by its swirling forms past the swooping information and ticketing counters, on upstairs to the café and restaurant, or to the glamorous Ambassador Club. Natural light, space, and form were part of the experiential narrative that was heightened by the procession through either of the two sculptured tubes connecting to departure lounges in the flightwings.

That transcendent preflight experience is now threatened. The Port Authority of New York and New Jersey, which has responsibility for the terminal once AMR's lease is up in January, presented a proposal last summer to turn TWA into a conference center. The building, to be renovated by Beyer Blinder Belle and surrounded by a new, semicircular, 1.5-million-square-foot terminal designed by William N. Bodouva and Associates, has been met with apprehension, dread, and antipathy, to put it mildly. Most critics fear, with reason, that a change of program will diminish the authenticity of this singular structure. They insist that the function needs to be preserved as well as the form.

Landmark hurdles

Since TWA is eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation has jurisdiction in accordance with section 106 of the National Historic Preservation Act to determine whether alterations involving federal money are appropriate. Earlier this year the State Historic Preservation Office ruled that the proposal presented by the FAA and the Port Authority had an adverse impact. So a meeting of consulting parties on October 29 was held to determine what stipulations are needed for a memo of agreement to be signed. (New York City's landmarking, bestowed in 1994, has no real leverage in this case, since the Port Authority is allowed to override it.)

Meanwhile, the TWA terminal, landmarked on both the exterior as well as the interior's main public spaces, could simply molder on-site, without any use.

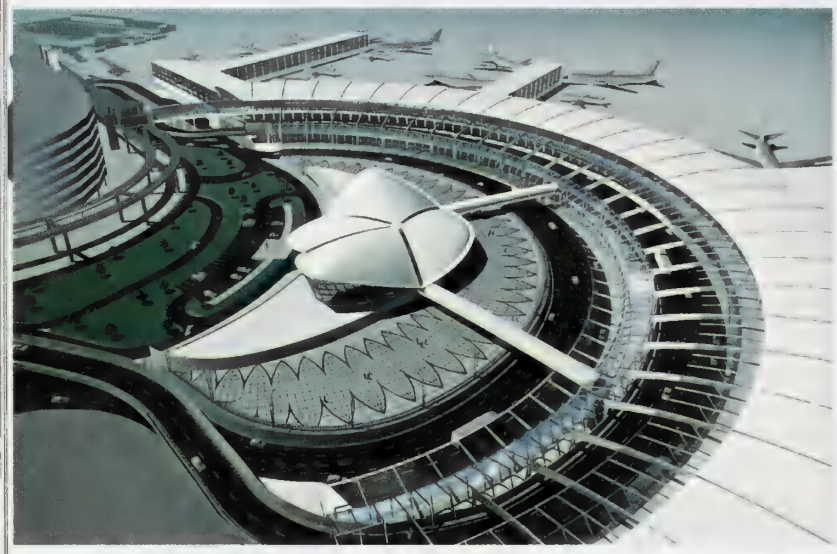
The Port Authority maintains, with reason, that the growth of air-transport traffic and the size of planes—compounded by increased security precautions—have made Saarinen's terminal totally out of date. Even putting in a small airline in need of a home, such as the fledgling JetBlue, they argue, would not work, since no-frills air carriers still need extra space for the heavy volume of passengers and large jet planes. (Nevertheless, JetBlue has told RECORD it is reviewing a move into TWA, but more about that later.)

Bodouva's proposed curved tubular building would create a new combined Terminal 5 and 6 behind the TWA terminal, with 750,000 square feet reserved for United's domestic and international operations, now divided between Terminal 6 and Terminal 7 (occupied by British Airways). The new structure would also offer 340,000 square feet for the aforementioned JetBlue, which now uses 10 gates of Terminal 6, with 450,000 square feet left over for an unnamed tenant, and a total of 52 to 58 gates. The existing Terminal 6, an elegant pavilion designed by I.M. Pei in 1971



At Saarinen's TWA terminal, the information desk is one part of the *gesamtkunstwerk*.

PHOTOGRAPHY: © ELIZA STOLLENWERK



In the proposed plan, William Bodouva's Terminal 5 and 6 wraps around TWA.

for National Airlines, would be razed. Although it represents the first use in the U.S. of glazed mullions supporting a window wall, the Pei building is not a landmark.

Not surprisingly, after the World Trade Center attacks, the Port Authority's ambitious proposal seems to be entering a deep-hold phase. Certainly the precipitous drop in air travel, the financial woes of the airlines, not to mention the loss of so many lives, including that of the Port Authority's executive director, Neil Levin, all have cast a deep pall over the ambitious scheme.

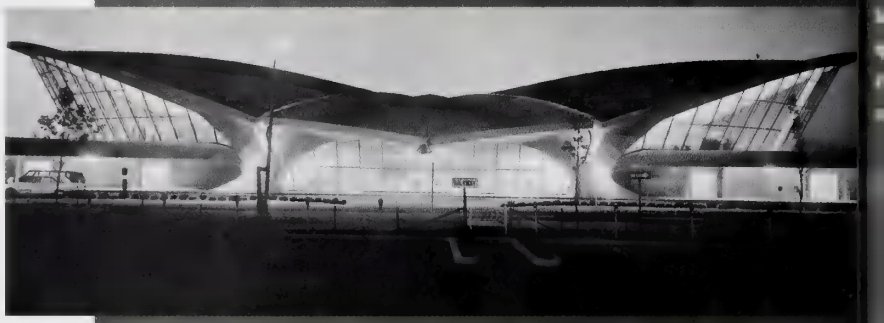
Even before the terrorist attacks, all the airlines were slowing in growth, and United was predicted to lose $1 billion this year. And while United is to receive $804 million in federal bailout money appropriated after September 11, financial experts such as Jamie Baker at UBS Warburg are dubious that United will stay committed to leasing space in the new terminal. For its part, JetBlue has signed on for five more years in the existing Terminal 6. Regarding its expanding into the new terminal, Fiona Morrison, a company spokesperson, said, "There are no plans for a build-out now." Yet JetBlue is looking into taking over the terminal: "Both TWA and the existing Terminal 6 have advantages and disadvantages," she adds, "and we have to see how things change."

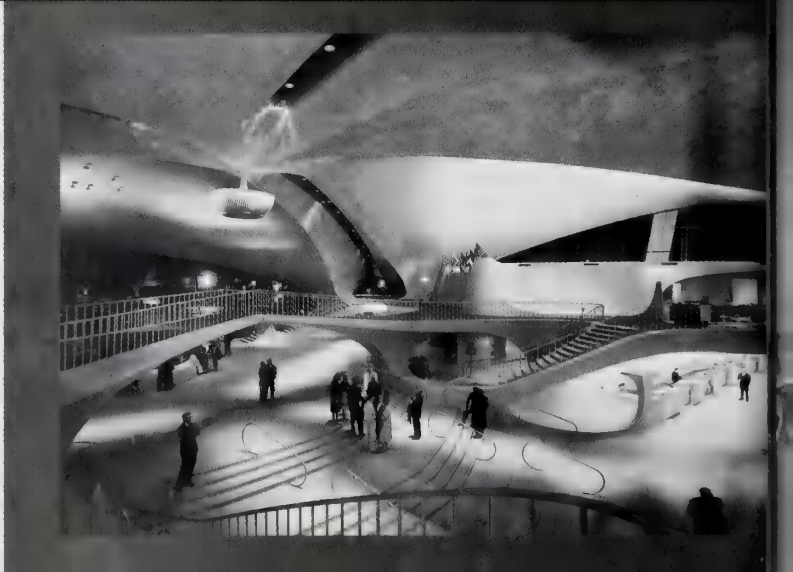
A bad economy is usually good for preservation. If such volatile circumstances allow more time to rethink the scheme, then we should take advantage of it. Obviously JetBlue's moving into TWA would solve the problem from the preservationist standpoint. But the company's interest is still tentative. In lieu of JetBlue or another airline moving in, there is no apparent, ideal solution to the TWA dilemma. The question lingers whether any other compromise can be found that would be "authentic," that is, come close to maintaining the aura that once emanated from this symbol of flight.

Objections to reuse

Opponents to adapting the terminal to another function include New York's Municipal Art Society and the Modernist conservation group, DoCoMoMo. They and others vehemently argue that making TWA a conference center, or even a restaurant, would cut it off from the real activity of the airport, as well as divorce it from its symbolic function of flight: Only the expression would











Saarinen's TWA terminal is a soaring testimony to the experience of flight. The entrance (below and center left), the mezzanine (bottom left), and the conversation pit overlooking the airfield (top) exemplify the wedding of function, form, and symbolism.

PHOTOGRAPHY: © EZRA STOLLER/ESTO

remain, not the content. On top of that, they object to the proposal to chop off the satellite gates (one designed by Saarinen with the original terminal in 1962, the other, by his successor firm, Kevin Roche and John Dinkeloo, in 1970) for the new Bodouva building. For his part, Kevin Roche responds, "I am not hung up on saving the flightwings." But Roche seriously wonders if another new use, especially a conference center, would be viable for TWA.

Port Authority's proposal

Meanwhile, Beyer Blinder Belle, fresh from its success in restoring and readapting Grand Central Station, has sketched plans to show TWA as a conference center. (The cost analysis is to come later.) The firm envisions 30 or 40 meeting rooms arranged in two clusters behind current ticket counters and baggage areas on the main level, along with shops and a bar. The upper mezzanine would offer a lounge and meeting center in the restored Ambassador Club, plus new dining facilities.

The BBB proposal means that nasty accretions added over the years would be scraped away, including a rectangular baggage-handling facility appended in the past five years on the south side, and the roadway canopy plunked down at the front curb in 1990. Interior finishes that currently show water damage and dirt would be restored to their original state, and the bits and pieces (including handicapped ramps) that so quickly destroy the unified look of an interior, redesigned. Even the shiny elastomeric coating that masks the purer luster of the exterior concrete shell would be removed and a better sealant sought.

The architect for the new Terminal 5 and 6, William Bodouva, lacks the halo effect of saving Grand Central to convince preservationists he is on their side. He has specialized in the design of air terminals for a good part of the 33-year-period since he left the Port Authority in 1968, after working there for a decade. While Bodouva hardly has the design reputation of Saarinen or Pei, two of his terminals, one for U.S. Air at La Guardia (1992), the other, Terminal One at JFK (1998), have been viewed as being more acceptable than the usual bland boxes at the airport. Bodouva has made beefed-up, white, space-frame roofs and ample skylights his trademark. The impact of such spaces, of course, depends on where you've been: We are not talking about Renzo Piano's Kansai Airport in Osaka, or Helmut Jahn's United Terminal at O'Hare in Chicago.

As far as the conference center is concerned, several experts have their doubts, especially since there is no hotel. Karl Nybergh of American Meetings and Conventions in Miami says, "I want a hotel room attached, or it means added expense." In addition, he is skeptical about bringing conference attendees to New York without having them go into Manhattan ("This isn't the Midwest"). Nybergh also wonders if the capitalization and amortization costs in restoring the 146,800-square-foot TWA space would make it profitable. Joan Eisenstodt, a conference management consultant in Washington, says increased security at the airport might discourage people from going to a terminal for a conference, especially one-day stints organized by local businesses, for which nonresidential conference centers would be appealing. "This sounds like it has location challenges," she adds. The executive vice president of the International Association of Conference Centers in St. Louis, Tom Bolman, agrees. Nevertheless, he and Ron Naples, another conference center consultant, from Manchester, Vermont, point out that it has been done successfully—for example, by American Airlines' various airports. Naples also thinks that distinctive architecture could be a draw, but marketing studies—which the Port Authority has yet to do—are needed.

Arriving there isn't the same

Regardless of the programmatic problems, we should be aware that

the spatial context would be altered irreparably by the new master plan. Saarinen's TWA terminal would be hugged by Bodouva's semicircular new terminal on its airside and hemmed in by the AirRail Transit structure and a parking garage on the landside.

There is more to the situation than a diminished view of the Saarinen terminal as a freestanding object: Passengers would enter and depart the new terminal via upper and lower roadways that would swing behind Saarinen's TWA. While the new plan opens up drive-by views of TWA's airside elevations, the landside entrance that so dramatically beckons would no longer be as visible to passengers. Also, the view from within TWA would be drastically altered: Instead of seeing jets taking off and landing, you would be staring at the roadways appended to Bodouva's terminal.

So what should be done?

Since top tier architecture is so rare, it is all the more desirable to save TWA, and save it well. At the same time, we have to acknowledge that TWA is outdated. If JetBlue decides to go into TWA, that would be great, although we still have to ask what changes are necessary to accommodate its needs. And there is the nagging thought that if a small airline such as JetBlue takes over TWA and later is swallowed by a larger one, or goes under, the problem would begin all over again. Airlines merge, disappear, and expand. Nothing is forever, and landmarking laws only go so far.

If the terminal isn't workable for any airline, other uses besides a conference center might present themselves. For example, some airport experts are calling for putting shops and eateries totally outside the security gates. Turning TWA into a shop and restaurant facility to serve a new Terminal 5 and 6 could arguably be one part of the flight experience. It would have to be investigated: Airport specialist James Bradburn of Fentress Bradburn Architects in Denver points out that passengers usually want to be at the gate, ticketed, inspected, and checked in before thinking about shopping and dining (incidentally, the major money-maker for the terminals).



Part of the experience: TWA's departure tubes.

If some alternate reasonable use can be found, very close scrutiny has to be given to the architectural design and modifications of TWA, plus any new structure encircling it, no matter who the architect, no matter the size. Up until recently (before George Pataki became governor), the Port Authority had an architectural review committee. In the case of a delicate situation such as TWA, it should be reinstated, with a review committee of outside architects and preservationists to address the execution of all design aspects.

We would hope that in the meantime the Port Authority would undertake initial restoration of TWA, including removal of the unoriginal add-ons. Otherwise it will become a ruin—an expensive one. Above all, let's remember that the most important part of TWA is the experiential quality of moving through the building—starting with its entrance—as you prepare to fly. Nothing, including a new arrival point, or alternate uses of the original structure, must change that. It is worth spending this amount of effort on saving a singular temple to flight. ■



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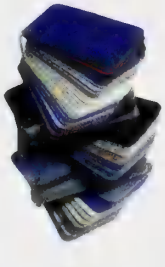








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CIRCLE 35 ON INQUIRY CARD

The powerful egalitarianism of disaster sheds light on a post–September 11 future

Critique

By Michael Sorkin

Traffic returned to the streets of my neighborhood after the security cordon moved south to Canal Street. It was the day of Bush's tardy visit to "ground zero" and the sky was filled with the futile darting of fighter jets, commanding anxious looks upward with every pass. I made my way through the police lines to my studio—not many blocks from the Trade Center—and sat around in paralysis for most of the day. Outgoing communication was down and I was unable to respond to dozens of e-mail and phone messages wondering if we were all alive.

In the evening, I returned home and switched on the television to learn the latest and watch the riveting pornography of planes smashing over and over into buildings, the eruptions of flame, the horrific collapse—all the while ashamed at my own fascination. Like the restored traffic in the streets, the traffic of commerce had also returned to the airwaves and the dour talk was again interrupted by commercials, happy faces commanding us to buy SUV's and stock up on useless commodities.

I had seen the disaster from the street out front of my apartment. It had been Primary Day for local elections and I had set out, a little later than usual, to vote. Sixth Avenue was filled with people looking south, one building was already down, and the north tower was in flames. The news spread rapidly about what had happened and the mood was simply one of shock and paralyzed calm. I raced back upstairs to try to phone people, to see if family, friends, and colleagues were all right. When I returned to the street, the second building was gone and the long, invariable view downtown with its twin punctuations replaced by a pall of smoke.

Michael Sorkin is the director of the graduate program in urban design at the City College of New York and practices architecture. He alternates each month with Robert Campbell in writing the Critique column.

Solidarity and civility

What to do? I went to vote, reasoning that this might be some small way of helping to defend democracy. But the polls were closed, yielding to a frightened crush of parents trying to find their kids at the school where the neighborhood votes. I wandered down the block to St. Vincents Hospital, where a queue of blood-donors already wound around the block, and told myself I would come back later. I began to walk downtown, toward the studio and against the numb crowds walking silently north.

Everywhere, people had gathered in knots around television sets put out on sidewalks and near cars with their radios turned up so all could hear. The sense of solidarity and civility came immediately as barriers of diffidence fell and comfort and information flowed freely between strangers. In the next days, acts of kindness and friendship multiplied and the public's demeanor became somber and respectful. We comforted each other with small exchanges of information and feeling and by the powerful egalitarianism of disaster. The city's official response was magnificent, beyond efficient, astonishing.



Spontaneous memorials have popped up all over New York, giving form to public grieving.

In the days following the attack, roads below 14th Street were closed to traffic and nobody but local residents was allowed in. The result was an eery calm as people, quiet and restrained, took possession of the empty streets as after a big snowfall. The weather was mockingly, preternaturally, beautiful, and the city was, in this way, at its very best: quiet, free of cars, crisp, cooperative. Only when the wind shifted and the dreadful smell of incineration permeated the air was there a sensory reminder of the hell nearby, belying the cool. And everywhere fell the ash.

I write these thoughts with hesitation. It still seems corrupt to experience enjoyment, still unsettling to encounter a laugh or a smile. Even shopping for food, I am embarrassed at the necessity of choice, at the act of selecting the taste that pleases me more, that pleases me at all. More than anything, luxury offends these days, both at the level of the everyday and in the fixation on the architectures of hyperconsumption that so dominate the discourse of our own profession. Surely, there will soon be calls to make a building even higher than the twin towers.

Before September 11, thinking about what to write for this column, instructed to conform to the the-

PHOTOGRAPH: © ANNA LOGLI/CONTACT PRESS IMAGES

matics of an issue about preservation, I had decided that my lead would be the—now postponed—opening, a block from my office, of a new Issey Miyake boutique designed by Frank Gehry and Gordon Kipping. As chance would have it, I bumped into Gehry the night before the terrorist attacks, while he inspected the frantic efforts to have the boutique ready for a party that was supposed to take place 48 hours hence. He asked me, with irony, whether I planned to shop there, and I told him that what I really wanted was the return of the old natural foods market that had been driven out by the rise of prices in this now remorselessly fashionable neighborhood.

The ecology of place

I had planned to write in response to the narrowed focus among architects and critics in which "preservation" has been reduced to a battle of styles, an endless debate over the virtues of modern building versus the historicism that serves as the official default for building in old neighborhoods like this one. The point I wanted to make was that the discussion had lost sight of the ecology of place, that we needed to preserve not simply the sense of visual reliability in beloved environments but also to be sensitive to the far more consequential issues of established ways of living, of daily habits, of the need for human permanence in chosen habitats.

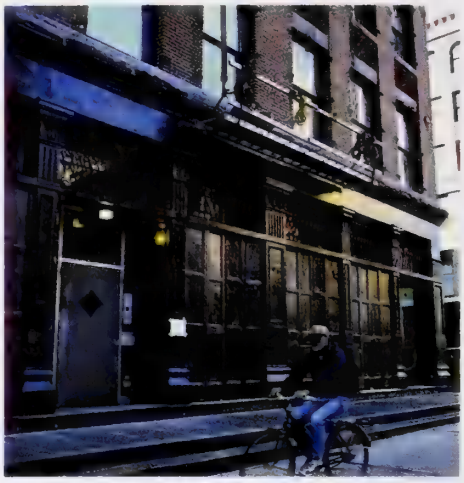
Gehry's boutique was going to have been exhibit A in all of this because it would surely have been beautiful, the work of our most artistically accomplished architect. And now, confronted by the presence of the agonizing absence of the twin towers from our field of vision, I am thrown back into the role of architecture as an element of citizenship. Must it now be subsumed in the rhetoric of defiance and victory? Will we continue to look at architecture as the answer?

Taking risks

There has been a brave and understandable clamor for rebuilding. After all, this was a preeminent icon of the town, and we don't want to give terror the symbolic victory of disfiguring our legendary skyline. Those terrorists—obviously informed about the structural character of this edifice—used architecture as a means of mass murder, and architecture, in this context, was an accessory to the crime. The economic and narcissistic logic behind these towers caused a series of choices that simply put people at risk.

Risk assessment—like "threat" assessment for the military—is always a component of architecture. Among the risks the designers of the Trade Center decided were worthwhile was a one hour climb downstairs for people attempting to flee the upper stories of the building, a climb impossible for the handicapped. Among the tradeoffs made was the elimination of asbestos fireproofing around the structural steel. There has been much discussion about whether the building—which sits along a primary approach route to La Guardia airport—was designed to survive the impact of a plane crash. The answer circulating in the media was that, yes, indeed, it had been, but of a crash of an older, smaller plane of the vintage of the years when the structure was designed. Whatever the specifics, though, the question remains about which harm's ways a building should be in, remembering that the harm can occur far away in the exploitation of resources and the inconvenience of workers.

THE TRAGEDY HAS ALREADY INVENTED ITS OWN MEMORIAL—PHOTOGRAPHS OF THE MISSING POSTED ALL OVER THE CITY.



Frank Gehry is designing a boutique in Tribeca, adding high design but change to the area.

For the moment, I am uncertain about what should be done to heal the site. Perhaps this is the moment for a decisive break from the machismo of scale that foregrounds values of size and cost above all other signifiers of success and power. Perhaps this is the site for reimagining architecture, not from the position of either power or paranoia but from a sense of humanity and compassion. Perhaps, however, this is a site not to be rebuilt. I shudder at the trivial objects of memorial that will ultimately be offered, the ornamented island of calm amidst the gigantic new construction. Perhaps this is a scar that should simply be left. Perhaps the billions should be spent improving transportation and building in neglected parts of the city. Neglected parts of the world.

Forever after

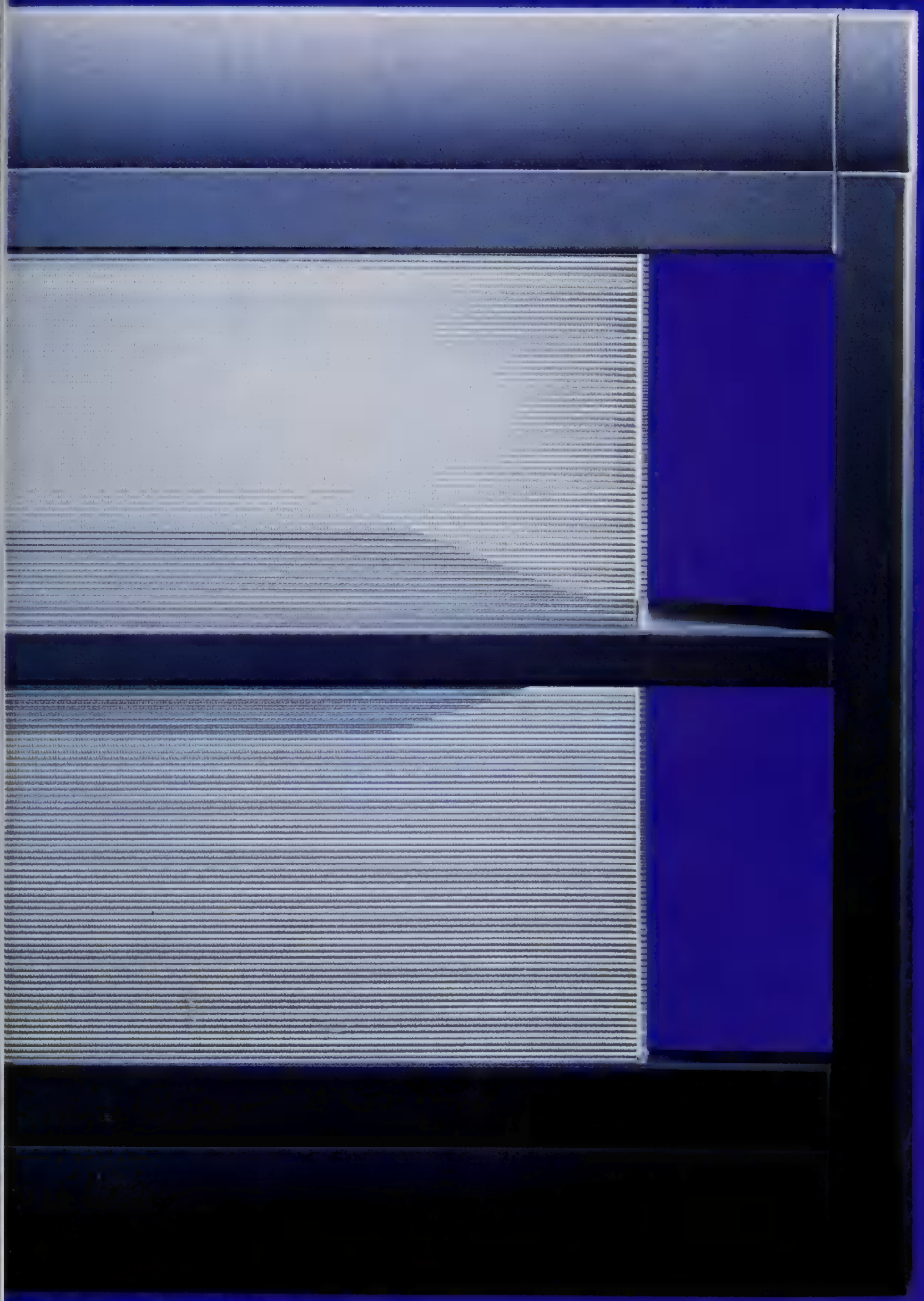
As the endless loop of planes crashing into buildings plays over and over in our heads, it is rapidly stored in the aestheticized image bank of disasters: the Challenger, the Hindenberg, the mushroom cloud over Hiroshima, the burning ships at Pearl Harbor, the ash-preserved figures of Pompeii. I had an especially icy feeling when I saw my first post–September 11 commercial. This first insertion of the rhetorical images of advertising between those of the disaster assimilated the spectacle to normal routines of capitalist visuality. Disaster morphed into a special effect. Depressing how many people interviewed refer to Bruce Willis, *Independence Day*, *The Towering Inferno*, the earthquake ride at Universal Studios. Every day now, when I cross Canal Street, I'm confronted with a huge billboard portraying Schwarzenegger with a murderous grimace, hyping his new film, *Collateral Damage*.

But the tragedy has already invented its own memorial. On every lamppost and mailbox, fence and facade, thousands of images have been posted, photographs of the missing, advertising the ineradicable despair of their loved ones. All over the city, people stop and stare at these photographs taken when things were normal: formal portraits and tourist snaps, family photos, graduation pictures. We all look at them to see if we know their subjects, breathing with quiet relief whenever we don't, but recognizing that every picture seems familiar, that every picture could have been our own or that of someone we love.

I am not chronically paranoid, but I'm good and worried. Not so much about the next attack (though I am still afraid to fly), but about the reconstruction of our city and our culture. The victory for terror lies in our own frightened willingness to give up on the values that are under attack, values that lie at the core of what good architecture and urbanism are about: facilitating the face-to-face, creating places of privacy and personal sanctuary, setting the pleasures of community, foregrounding the beautiful. Asked for an ID every morning by a guardsman in combat dress, listening to the President blustering about "smokin' them out of their holes"—with the "them" as yet unknown—I fear for us all, fear for where we'll live from now on. ■

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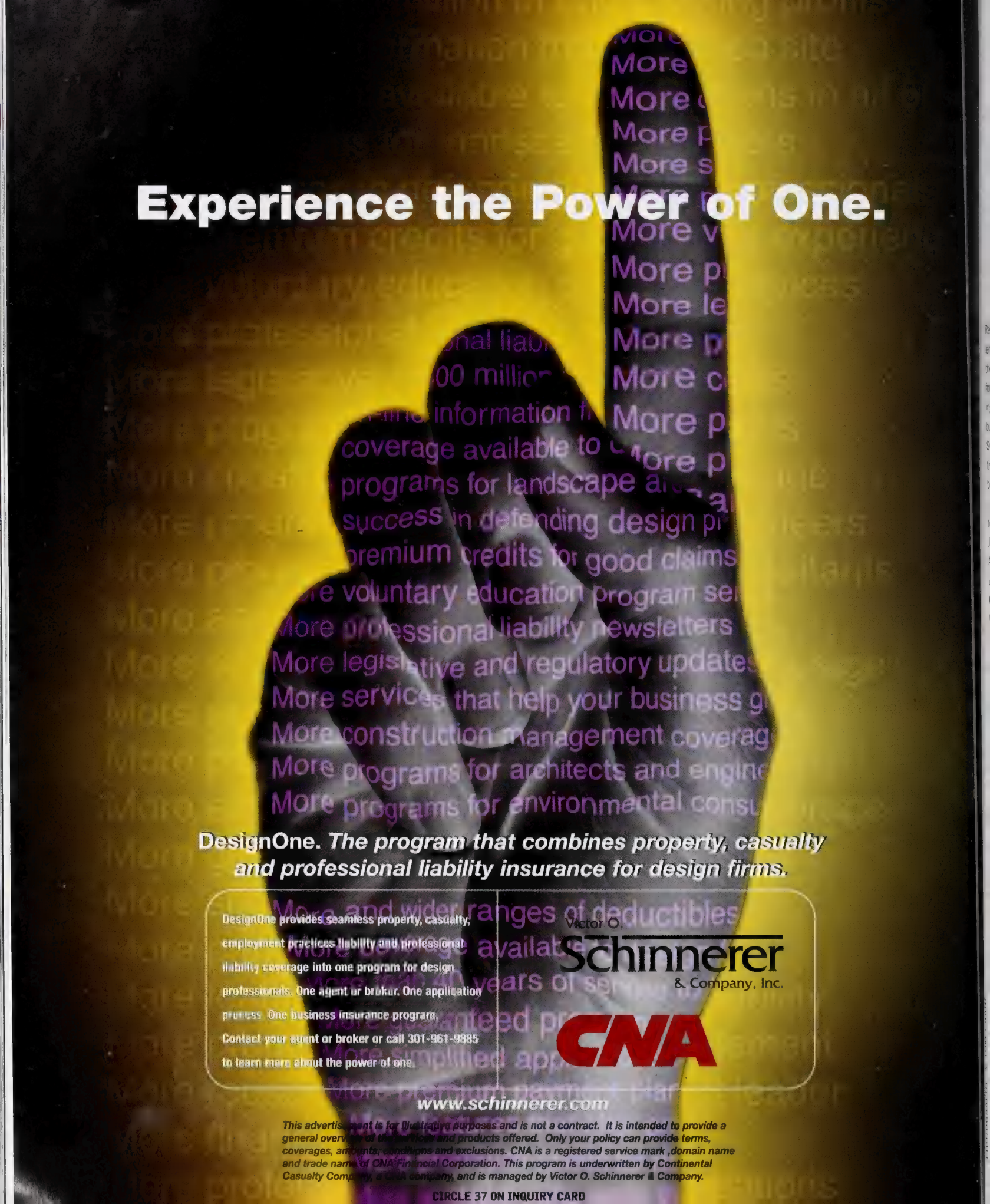
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CIRCLE 37 ON INQUIRY CARD

Salvation for the obsolete need not mean authenticity must be sacrificed

Practice Matters

By Charles Linn, AIA

Renovation can be tricky. The challenge lies in finding a way to make the modern improvements necessary for economic viability while determining what to retain to preserve the building's historic authenticity. Success renders the practical, adaptive reuse of architecturally significant buildings into an art.

Some projects carry the additional freight as icons. The New Jersey Sports and Exposition Authority (NJSEA) decided to update its famed Atlantic City Convention Hall, also known as Boardwalk Hall, to serve as a small sports and special events venue. That choice meant the building's new program would be, in effect, an extension of its old one, making it practical to retain and restore many of the building's original architectural features, and much easier to maintain the historic character of its interiors. Changing the building into a large casino, for example, would have rendered the interior almost unrecognizable.

The NJSEA hired the architectural firm Ewing Cole Cherry Brott, which worked with sports design specialists Rosser International to incorporate many new features into the structure, including a new steel-and-precast seating bowl, as well as an ice sheet, scoreboard, and event lighting and rigging systems. Ewing Cole also brought on Watson & Henry, architects and engineers specializing in the preservation of historic buildings, to help assess the building's historic significance and incorporate sound preservation practices and principles into the renovation process. Donald Dissinger, AIA, and John Sassman, AIA, of Ewing Cole, and Michael Henry, AIA, of Watson & Henry were in charge of the project.

A 1920s wonder

Boardwalk Hall was a marvel when it opened in 1929. Its stone, Art Deco–influenced facade dominated the beachfront. At 140,000 square feet, its auditorium was touted as the "world's largest," and seated 32,000 at capacity. Its immense, barrel-vaulted ceiling, supported by enormous arched trusses and said to comprise the greatest clear-span space in the U.S., had a 131-foot floor-to-ceiling height. The proscenium was 104-feet wide, and the pipe organ, it was claimed, was the biggest ever built.

The interior of the hall was designed in a delightful pseudo-Byzantine style, embellished with seals of Atlantic City and the U.S. states and territories, as well as flags of the Society of Nations. Its polychromed architectural finishes, painted in a wide range of colors, gave scale to the huge interiors, with themes that cast a net from the adjacent coastline to the shores of the Mediterranean. The call letters of a radio station once located in the building, WPG, formed an acronym that reflected what Atlantic City really was back then: the World's Play Ground. The windowless auditorium inside the hall also boasted the the most sophisticated animated lighting system of the day: Lights shone through hundreds of panes cut into the sides of the arches that held up the roof. Their colors could be changed at will, and they reflected onto the silver ceiling.

But, it is difficult for even magnificent buildings to keep up with the times. Over the next six decades, Boardwalk Hall could no longer meet the demands made of modern convention and exhibition facilities. It was too small for many events, and most of its mechanical, electrical, and lighting systems were outmoded and in need of replacement. When Atlantic City opened its new convention center facility in 1997, the building was rendered all but obsolete.

Still, it had remained the home of the Miss America Pageant through thick and thin, and its prime location, on the beach in the midst of an assortment of recently built hotels and casinos, is unique on the East Coast and one that many convention cities would covet. The NJSEA decided to save it.

The question was how much of the building should and could be preserved while it was updated—a key question for tax credits to help finance the improvements. Once elements are chosen to be repaired, preservation consultants decide what historic period will be favored in the restoration. This time frame that is chosen is called the "period of interpretation."



A new precast seating bowl improves sight lines, capacity, and comfort.

PHOTOGRAPHY: © TOM CRANE



A sense of scale: The top of the proscenium is 131 feet above the stage.

Research

A first-hand assessment of the auditorium's interior confirmed that much of the architecturally significant historic interior was intact, although important features were obscured by the harsh glare of modern overhead lights and layers of inappropriate, nonhistoric paints. The ceiling was severely damaged, grime-covered, and water-stained.

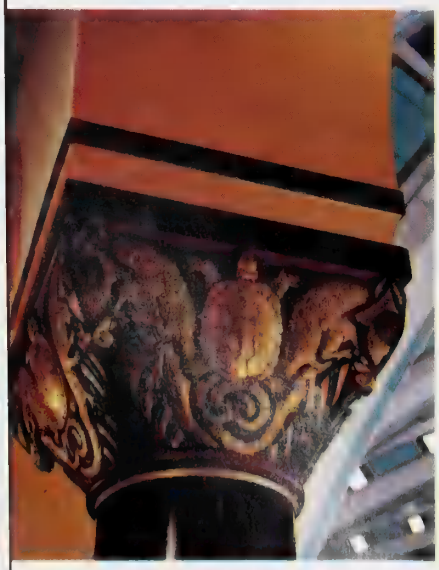
Choosing a period for interpretation was fairly straightforward. Although the hall has been important throughout its history, the team decided on its glory years—from the dedication in 1929 to about 1934. At that low point, in the midst of the Depression, the owners decided that the building's intricate lighting system was too expensive to operate and maintain. They abandoned and replaced the original with various systems of pendant lighting, which were simpy punched through the ceiling. Subsequently, the once silver-painted acoustical ceiling panels began deteriorating. It would not be long before the beautiful polychroming that had originally covered many of the building's architectural details was hidden by multiple coats of paint.

After identifying the architecturally significant period in the building's life to establish a starting point for planning the adaptive reuse, the architects focused on other factors. They paid particular attention to the building's interior massing; the arched trusses that supported it; its original indirect lighting scheme; and the architectural detailing. The seating systems and balconies would be altered as the building was converted to a modern sports arena and entertainment center.

Design and construction

Sometimes in preservation work, compromise is the best solution. The three most important elements of the renovation would be the installation of a new auditorium ceiling, the introduction of a new seating bowl, and the restoration and treatment of the decorative arts finishes. Proposals for dealing with these various elements were presented to the New Jersey Historic Preservation Office, and approval was secured from the state as well as the National Park Service of the U.S. Department of the Interior. The careful planning, analysis, and review allowed the New Jersey Sports and Exposition Authority's rehabilitation work to qualify for a substantial tax credit. [For more information on federal tax credits for rehabilitation of buildings, see RECORD, October 2000, pages 63–64.]

Not all building systems were replaced in kind. The original ceiling was acoustical board and had been made of compressed sugar cane, backed with friable asbestos board. The acoustical board would have been difficult to match, and encapsulating the asbestos would have added a tremendous load to the structural system and done nothing to improve fire resistance or acoustics, so the ceiling was replaced. To avoid constructing floor-to-ceiling scaffolding, the architects, along with Tishman Construction, devised a trolley-beam supported moveable-scaffolding system. Platforms could be used to support workers while they removed the old ceiling and asbestos, then relocated to a new area when the work was finished. Glass-reinforced gypsum and perforated metal panels were installed in place of the old panels. Their appearance is faithful to that of the original ceiling.



Boardwalk Hall's nautical, pseudo-Byzantine details were restored.

Replacing the seating bowl

The existing balconies had inadequate sight lines and did not meet code for a multipurpose event center that would serve a range of events, including minor league hockey, the Miss America Pageant, and concerts. Here, a compromise was required—the old balcony was removed and a radial U-shaped bowl of the lightest steel framing possible was used to support precast concrete seating. The architects were able to extend seats toward the center of the hall to improve sight lines to the stage and ice sheet. A musicians' balcony once located on the south wall was replicated in the new bowl, providing an overlook where the vast size of the space can be appreciated.

The historic seats also did not conform to present standards of comfort. New seating was considered acceptable, as long as sufficient quantities of historic seats were restored for reuse in various locations throughout the building.

Decisions involving the original decorative painting scheme were the easiest to make: Conservators recreated the original scheme and applied conservation treatments elsewhere as they were needed.

THE CHALLENGE IS KEEPING AS MUCH AUTHENTICITY AS POSSIBLE WHILE RESTORING ECONOMIC VITALITY.

The restoration of the Atlantic City Convention Hall illustrates how retaining a building's authenticity while at the same time functionally improving and restoring its economic vitality can be a balancing act. In many cases, patient assessment, a commitment to protecting the existing structure, and a realistic willingness to accept changes are the keys to saving architecture that might otherwise be doomed. ■

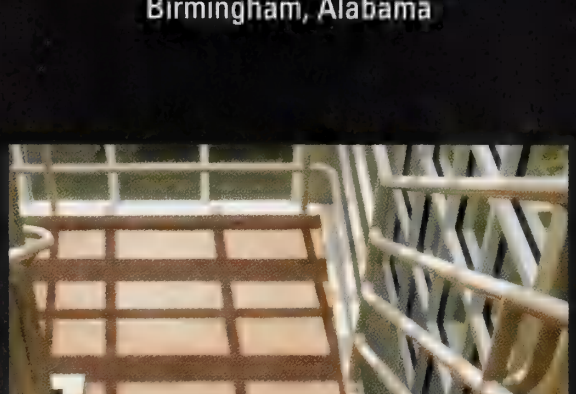

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Snapshot





From Brancusi's sketch (above), *Endless Column* was built in modules (bottom) to a height of 98 feet (right).

Near Brancusi's birthplace, his sculptures are reborn

By S.A. Miller

Three monumental sculptures by Constantine Brancusi have stood in the obscurity of Tirgu Jiu, a city in southwestern Romania, for more than six decades. But lately, the international limelight has begun to shine on the 98-foot-tall *Endless Column*, the ceremonial *Table of Silence*, and the triumphal *Gate of the Kiss*. In 1996, the World Monument Fund put them on its *Watch List of 100 Most Endangered Sites*. As a result, the long-neglected site has received financial support from such sources as the World Bank, Romanian Ministry of Culture, and World Monument Fund, and gained the attention of expert groups ranging from the Swedish Corrosion Institute to the J. Paul Getty Conservation Institute.

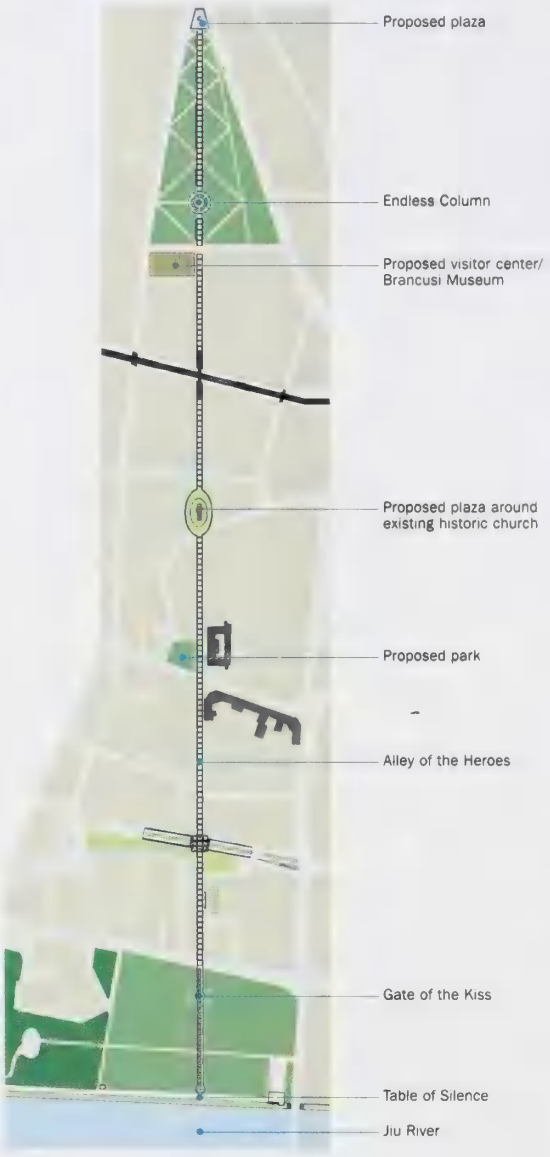
Meticulous restoration of all three sculptures recently reached completion, as the scope of a multiphase conservation project expanded to encompass the townscape around them. But the long and rocky road from the initial Brancusi commission to the ambitious undertaking now in progress can be traced back to modest beginnings.

In 1937, the League of Gorj Women, a local nonprofit group, approached Brancusi to create two monuments as



PHOTOGRAPH: © BRANCUSI ARCHIVE (TOP AND MIDDLE IMAGES); ANDREW MORKES (BOTTOM)

Snapshot



SITEPLAN N←







The *Gate of the Kiss* and *Table of Silence* (above) are travertine, while the *Endless Column* (below) is of bronzed cast iron with a steel spine.

a World War I memorial for Tirgu Jiu, capital of the region where he was born. The town, along the Jiu river, is near some WWI battle sites. Brancusi exceeded the initial commission—convincing the League to sponsor three sculptures, linked by a processional pedestrian axis, the 0.9-mile-long Alley of the Heroes, through the town center.

As designed, the *Endless Column* rises through lozenge-shaped cast-iron modules, plated in brass and threaded onto a carbon-steel spine. The *Gate of the Kiss* and *Table of Silence* are carved in travertine. Completed in 1938, the sculptures received no preservation or maintenance for nearly 30 years. In the 1950s, under Ceaucescu, the local Communist government tried to demolish the column "for ideological reasons" (possibly causing a seven-degree bend toward the top, which was recently corrected). Also in that era, the clarity of the town plan and vistas culminating at the column were disrupted by unsightly high-rises, as well as rail tracks and a major vehicular artery crossing the alley.

The World Monument Fund hired Mihai Radu, AIA, a Romanian-American architect, and his New York–based firm, Lauser & Radu, to oversee the teams of researchers, conservationists, metal and structural analysts, and artisans restoring the sculptures. The column was disassembled down to its spine and reassembled with new welds and finishes. Measures were taken to prevent future corrosion and to allow for drainage, ventilation, and maintenance.

"Beyond preserving monuments," Radu points out, "the World Monument Fund empowers communities to maintain them and become economically self-sustaining." Accordingly, the Fund enlisted Lauster & Radu to develop a master plan to stimulate tourism and boost the local economy. The 30-year plan includes reviving the pedestrian axes and historic buildings, creating parks, and building a Lauster & Radu–designed visitor center/Brancusi museum providing studios for young sculptors. The architects aspire eventually to demolish the Ceaucescu-era high-rises—and fully reclaim the *Endless Column*'s position of dignity and grandeur. ■

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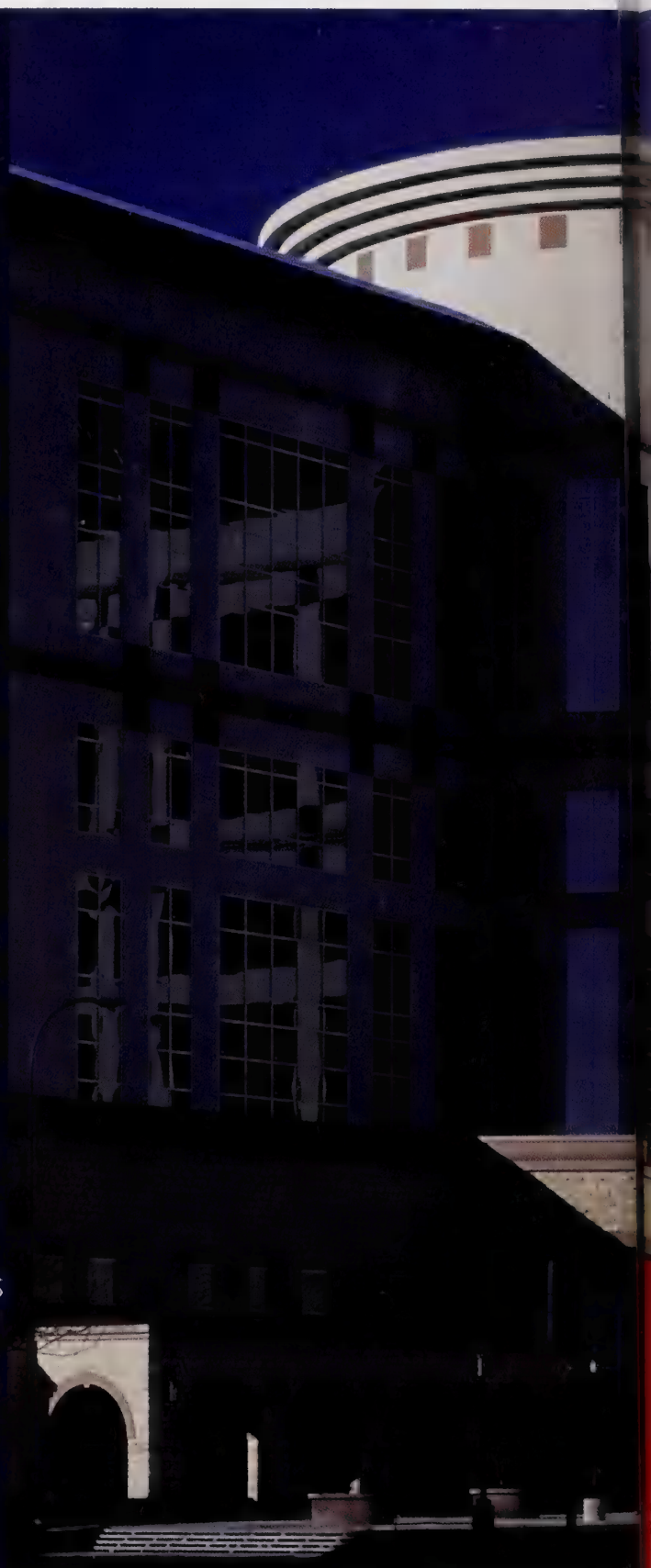
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Reality and Authenticity in the



The new experience economy challenges how we judge what is real

By Michael Benedikt

We move about in an increasingly media-saturated environment. In suburb and city, the quiet of nature has become harder to experience on a daily basis, as has the quiet of Classical and "classic" Modernist architecture—buildings that radiate that they are what they are, that they have already said what there is to be said, that although they stand by us and for us, they do not seek to persuade. Reality—this quieter reality, anyway—is under threat, as well as authenticity, which is the authority that comes with being real in just this way.

Some argue that this state of affairs is an ineluctable consequence of the evolution of our economy. Increasingly, as we make our livings and seek our pleasures in the fields of information created by others, more of us are drawn into working in a new kind of economy—one beyond the familiar "information economy." Today we live and work in the "experience economy." In a book of this name, Joseph Pine and James Gilmore argue that as free-market capitalism evolves, the locus for the creation of new value (and, with it, the locus of new profits) shifts from the production, distribution, and consumption of material goods, first to services, then to information, then to experiences. This development can be seen as a counterthrust to a simultaneous movement in the opposite direction: the steady devolution, under routine price competition, of hundreds of once estimable goods and once luxurious services to low-profit commodities and automated services.

The focus of more and more of our creativity, then, is not things, really, nor services as "parcels" of useful labor, but information fields, treated as private property, in which memorable and entertaining experiences can be had. Restaurants compete in atmosphere and service, with the

Michael Benedikt is architecture professor and holds the Hal Box Chair in Urbanism at the University of Texas, Austin, where he is also the director of the Center for American Architecture and Design. His book, A General Theory of Value, *is forthcoming in 2002.*

The dual qualities of intimacy and immensity are dramatized with simple materials in Louis Kahn's Salk Institute (1965) in La Jolla, Calif.; Carlo Scarpa enlists a complex vocabulary of material and form in the Brion Cemetery (1970), San Vito d'Altivole, Italy.





Experience Economy

food becoming more like art on a plate, and waiters more like actors. Climate-controlled shopping streets become "Roman marketplaces"; gigantic suburban bookstores imitate old-time, intimate ones with living room furniture, readings, and espresso bars; movie houses become movie "palaces" again (but, much more economically, set off of freeways), and so it goes. At children's hospitals, patients become explorers, "embarking on a journey to recovery," while new housing developments imitate historic or imagined small-town life (if at quadruple the density). In short, every place, every product, every service and event in the experience economy becomes themed, as though it were part of an endless carnival.

These developments have not been lost on architects, of course. Ever since Postmodernism broke through late-Modernist orthodoxy in the early 1970s, more and more architects have joined in the business of entertaining with their buildings, that is, providing pleasurable experiences. Although rather few architects today are interested in perpetuating the classical-historical pastiche that Postmodernism first favored, many are still interested in the proposition that all buildings—not just amusement parks, museums, hotels, aquaria, and such—ought to provide exciting and memorable encounters, albeit with trendier shards and curves or luminous twisted volumes crammed with electronic paraphernalia. Follow this trend and extend it, and ultimately we must arrive at a new general understanding of architecture—to wit, architecture as experience à la Jon Jerde or, let it be admitted, Frank Gehry—and a new baseline as to what the word *experience* means in the everyday.

Given architecture's long history of providing visitors marvelous experiences—from Rome to Disneyland—why does the thought of our whole economy mutating into an experience economy not thrill every architect to the marrow? Might such architects' misgivings belie nothing more than elitism with respect to popular culture? Might it belie the fear of not being able to compete successfully with the other experience-producing industries, like film, music, sports, and television? Maybe.

But perhaps architects who worry about the rise of the experience economy are onto something more significant. Like canaries in the proverbial coal mine, they could be registering a disturbing shift in modern culture, namely, the loss of a healthy balance between what is real in life and what is not—between what is authentic and what is not—and of the balance between these qualities that architecture has historically been instrumental in providing.

Every person has an abiding need to make this related set of discriminations between the actual and the illusory, between fact and fiction, the natural and the artificial, the material and the nonmaterial, the significant and the trivial, the authentic and the fake ... and so on. Why? So that at the very least we can freely choose between them, or, more basically, because without the ability to make such binary discriminations we could not function at all. Let's try to take this thought to architecture.

As I pointed out in *For an Architecture of Reality*, realness in buildings has four elemental components: presence, significance, materiality, and emptiness. Very briefly: "Presence" is about a building's perceptual clarity and self-confidence; "significance" about its involvement in people's lives; "materiality" is the building's physicality, its heft, temperature, airiness; and, finally, "emptiness" is about a building's lack of didacticism, a sort of indifference and generosity that we can't or don't want to explain. These four qualities also comprise our sense of reality about everything else. But buildings, which routinely and everywhere embody all four to some degree, play the important role of providing people with benchmark examples of what reality is and what the experience of reality feels like. This standard-bearing is all the more needed when we live in a mediated and media-filled world. Buildings that have a powerful presence, significance, materiality, and emptiness serve as touchstones against which more ephemeral human productions are shown to be less than fully real, though perhaps no less important for life's richness. On this accounting, the play is less real than the set, which is less real than the theater, which is less real than the hill covered by the street.

I am in no way ignoring architecture's many long flirtations with illusion and artifice. Poised between nature and culture, architecture,





Simplicity with tactility are seen in Peter Zumthor's Thermal Baths (1996) in Vals, Switzerland, and Alvar Aalto's summer house (1953) in Muuratsalo, Finland.

even at its most fanciful, has always shown two faces at once, the real and the unreal. However much artifice architecture has historically indulged— and it has—the face of reality has always shone through as a matter of technological, physical necessity. One could not see the trompe-l'œil angels without also seeing the heavy vaults they were painted on. With today's lightweight construction methods, and late-20th- and early-21st-century attitudes toward reality, the situation has changed. When so many building types are reduced to card-thin containers; when any shape dreamed of can, with computers, be rigged with light steel, plastic, gypsum, and glass; when *reality* is a word seldom printed or pronounced without quotes or a knowing chuckle, only economic constraints keep us from building our most extreme architectural fantasies.

Some architects have responded to the potential horror of the situation by regressing, as it were, to Miesian Modernism, that is, to a stringent economy of form and absolute "honesty" in construction. They refuse to indulge in the formal and semantic possibilities offered by the full range of contemporary construction technologies. Others are more eager to explore these possibilities, but at the same time, in the name of Modernist honesty, feel compelled to expose structure, fabrication, joints, and ductwork to public view. Yet others are quite comfortable creating dramatic and themed spaces—as long as they can be frank about the artifice. But honesty and frankness are not enough, since most of the facts that buildings portray are up to architects to choose in the first place. The quest, rather, is for authenticity, which is the authority that comes from being real without trying.

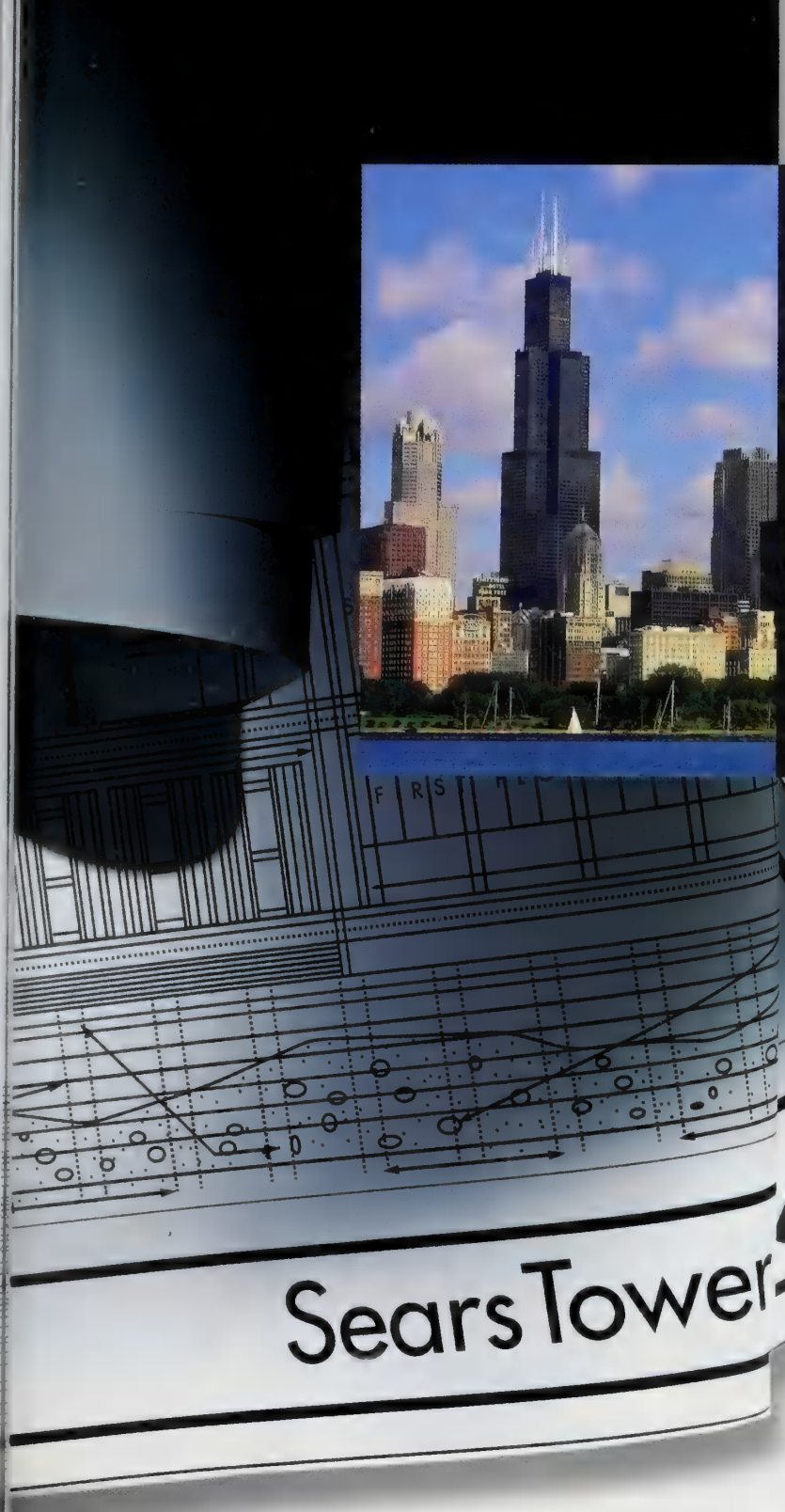
THE AUTHENTICITY OF AN ARCHITECTURE THAT EMBODIES A QUIET REALNESS SHOULD BE POSSIBLE TO ACHIEVE.

And there's the rub. The moment one tries to be real, tries to be authentic, and the trying is detected, the bubble bursts and inauthenticity spills out. But all is not lost; there is some middle ground. The best actors can make us forget they're acting. Affecting nonaffectation (unless their characters are affected), they somehow remain true to themselves as persons and true to the characters they portray, reconstituting them into singular and wholly new personalities. Can architects—or, rather, their buildings—do the same? One might argue that the "willing suspension of disbelief" that is prerequisite to the functioning of the theater and movies works unfairly in the actors' favor. But, in truth, a parallel and equally willing suspension of disbelief works in the architects' favor, too. People assume their buildings to be fully real, giving them as much credit on this score as they possibly can. Who of the public can tell sheetrock-on-studs from a plastered wall? Who but an architect can tell whether an arch is really carrying a load? On the other hand, who doesn't know that the Bellagio in Las Vegas is not Bellagio in northern Italy? They know the Bellagio in Las Vegas to be what it is: a huge concoction and experience—with, yes, real flowers and real water out front. Matters are more problematic when chain bookstores, stocked with best-sellers and staffed by 20-year-olds, disport themselves as cozy haunts for bibliophiles.

A world without circuses is not one I want to live in, nor a world of circuses where nothing is what it seems. The authenticity of an architecture that takes as its goal the embodiment of quiet realness should be possible to achieve. Many ordinary people want that sort of realness, too, and long to have experiences of it that are not obviously for sale. I offer this analysis of architecture's realness as a tool for thinking about the issue, and suggest that we look to the work of Aalto, Van Eyck, Kahn, Scarpa, and Zumthor for guidance as to what authentic architecture might look like in modern times. We look to Aalto for his nondoctrinaire yet fully material renderings of new and useful form; Van Eyck for his seemingly unlimited attentiveness to perceptual and social realities; Kahn for his ability to bring intimacy and immensity together using the simplest materials, and to make spaces that are more generous and dignifying than called for. Then we value Scarpa for developing a vocabulary both curious and inevitable, like new nature, speaking straight to the heart, and Zumthor for reminding us that admirable simplicity is never simple, that architecture is tactile, that the land is our larger home. And how much more there is to learn from the thousands of unassuming yet generous old buildings that still dot the American landscape, patiently awaiting our attention. ■

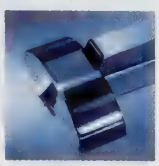
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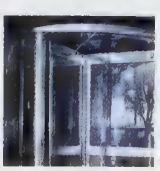
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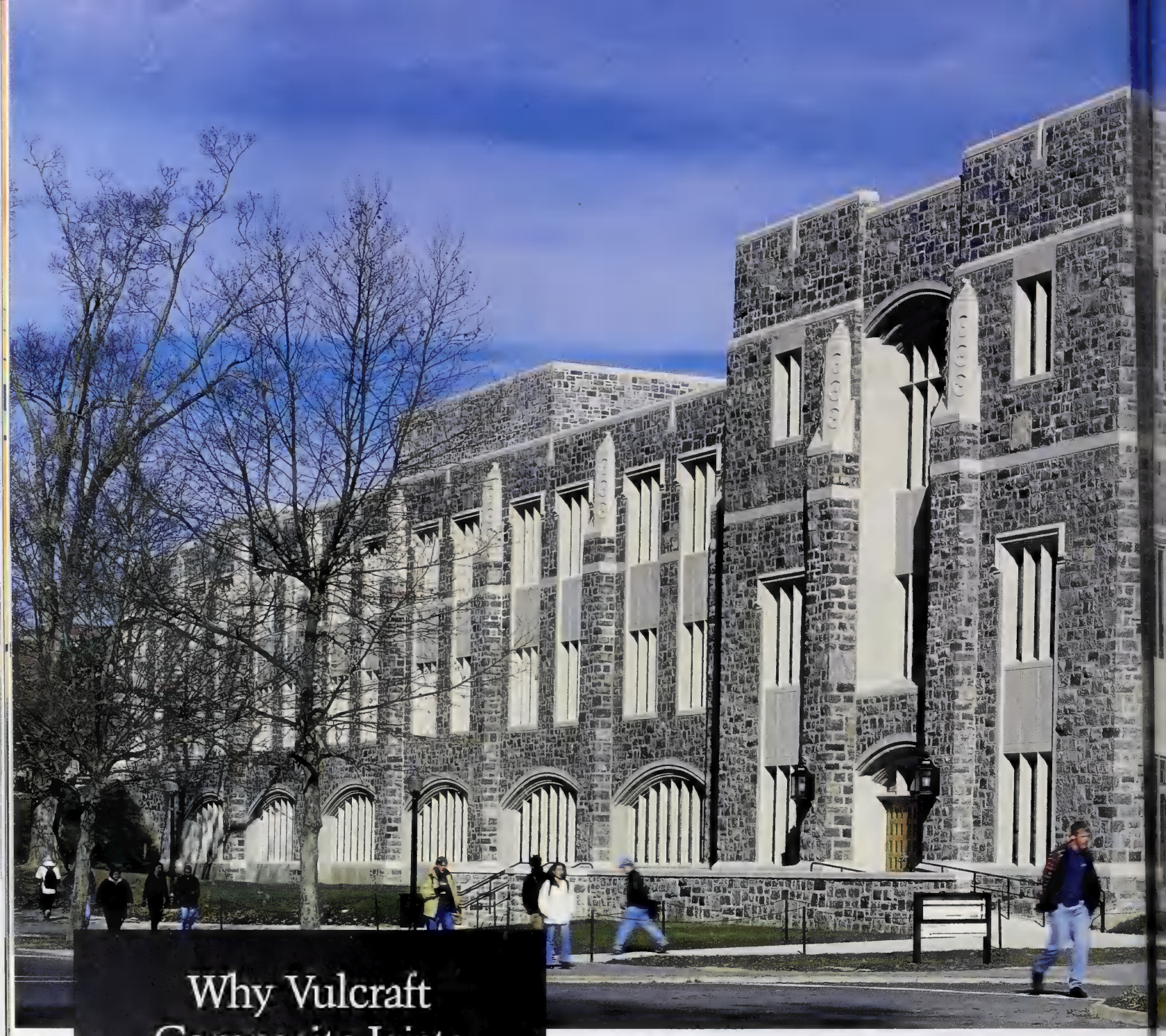


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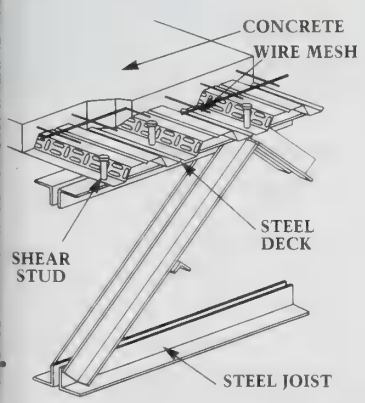
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Preservation's Shackles

Is the movement doomed to enshrine an imagined past?

By Thomas Hine

The building in question was only a clothing store, but for those fighting over Rem Koolhaas' design for a new Prada shop near Union Square in San Francisco, the issues seemed momentous. Would this city—a hotbed of nostalgia for the radical and the decorative—allow a building that speaks of the future, or would it insist on one that looks to a largely imagined past?

Koolhaas had proposed a 10-story building with a glass storefront at street level, rising to a stainless-steel facade punctured with more than 8,000 holes that earned it the nickname "the cheese grater." Because the site occupies a conservation district, the design needed approval of the city planning commission. A 59-page Environmental Impact Statement noted that the design included neither San Francisco's preferred materials nor the classical base and cornice, which, the report asserted, characterize this very mixed commercial neighborhood. In September, the commission voted to allow the building, over the strong objections of its planning staff and director, Gerald Green, who concluded, "We're coming down a slippery slope here." (Well, it is San Francisco.)

Thus, the new achieved a narrow victory—in contrast to a similar battle last spring in Cambridge, Mass., where the local landmarks commission rejected the scheme for a 25,000-square-foot Harvard Square office building, designed by Hans Hollein and proposed by Harvard University. Still, win or lose, adventurous buildings seem doomed to face bureaucratic ordeals, bound to discourage future clients. Many will presumably respond with designs that can win easy approval, resulting in duller American cities. And, some argue, it is all the preservationists' fault.

After a long period in which historic preservation seemed an unquestioned virtue, it has taken a hit in the past year or two. Critics and academics have asked whether the movement is standing in the way of living cities and vital architecture.

To preservation's skeptics, existing laws enshrine a past that never was, suppress the change that history is all about, and encourage new architecture based on historical pastiche, rather than the ideas and capabilities of our time. "Preservation is in danger of tumbling into sentimentality," says David G. De Long, architect, historian, and former chairman of the University of Pennsylvania's historic preservation program. "Little to do with love of the past, it's too often about fear of the future."

Thomas Hine is former architecture critic of The Philadelphia Inquirer. *His books include* Populuxe *and* The Rise and Fall of the American Teenager.



As shown in photomontage (above and opposite top) Koolhaas' "cheese grater" Prada store was ultimately approved for construction in San Francisco.

It's not surprising that some architects don't like preservationists, because many preservationists don't like architects, at least not living ones. The preservation movement has been sustained in the past four decades by a profound public pessimism about the capabilities of contemporary architects. It was galvanized by the destruction in 1963 of New York's Pennsylvania Station and the construction of the dispiriting complex that took its place. And the San Francisco law that required the Prada

review was, in part, a reaction against the nearby unpopular Neiman Marcus store, designed by Philip Johnson.

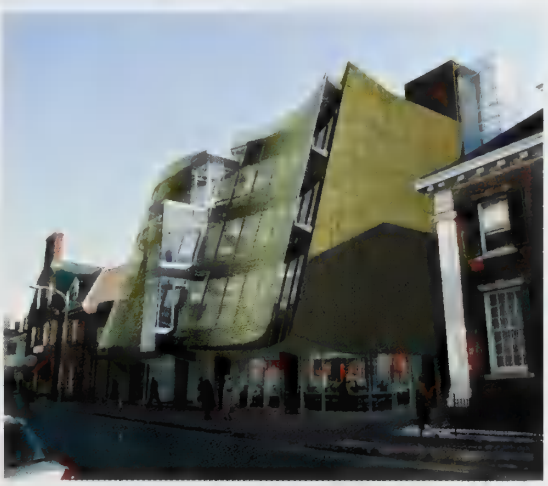
There's little doubt that architects have, at times, justified pessimism. Preservationists helped establish the view that buildings are important cultural achievements, but members of the movement often behave as if all history and worthwhile architecture have already happened—thus sustaining the faith that the old is always better than the new. The movement has failed to develop a theoretical framework to allow, for example, consideration of the relative importance of buildings. Nor have preservationists participated in intellectual debates among historians and others about the nature of history and how old buildings and artifacts should be understood. Rather, the movement has operated more as a political entity, successfully building constituencies and defending interests.

At the moment, historic preservation appears to be enjoying widespread public support, having survived a decade of legal challenges that pronounced historic regulation an unconstitutional seizure of private property. (The Supreme Court has generally ruled against land regulation, but on such narrow grounds in each case that no real precedent was set.) Preservationists suffered a setback in 2000, when Congress exempted all religious buildings from regulation, though the matter will likely reach the Supreme Court, which has already found a similar law unconstitutional.

Since the 1960s, historic preservation has evolved from a protest movement—the proverbial little old ladies in tennis shoes—into a major civic undertaking, involving thousands of historic-district commissions and advocacy groups. It has also become, increasingly, a profession. Congress' 1976 enactment of preservation tax credits brought real estate developers into the preservation community, in turn generating jobs for architects specializing in adaptive reuse. And the movement has been absorbed into government, not merely with historic and landmark commissions, but also with planning, zoning, building inspection, and economic development.

"Preservation has become a bureaucracy," says Richard W. Longstreth, director of the graduate program in historic preservation at George Washington University. "But look at the plus side of that bureaucracy—how many thousands of neighborhoods have been retained and rehabilitated, how great a sense of stability has been restored to places that were in decline. Preservation has been a very positive force in our society."

Longstreth believes that those who denigrate preservation are confusing it with a phenomenon that ought to be its opposite: themed environments. Theming is about packaging places as friendly, commercially enticing experiences, and, in its aspirations to create unified, harmonious environments, it tends to suppress differences among historic buildings. By emphasizing the fabric of specific buildings, historic preservationists should provide an antidote to theming, but they have often been its accomplices. Some of the town centers redesigned under the National Trust for Historic Preservation's Main Street Program bear an uncanny resemblance to Disney's Main Street, USA, whose approach is theatrical, not historical. Moreover, some of the first models of successful, profitable preservation were themed developments: San Francisco's Ghirardelli Square and Cannery of the 1960s and Boston's Faneuil Hall Market



Hollein's proposal for ■ Harvard Square building (above) was turned down by the local landmarks commission.



Boston's Fanueil Hall Market (above) and San Francisco's Ghirardelli Square (below) were early paradigms that generated abundant formulaic knockoffs.

of the 1970s. These outstanding projects generated knockoffs that treat historical elements with less integrity and design skill.

America's propensity to theme its cities and neighborhoods suggests that we think about these places more as real estate development sites than as cultural undertakings. We seem to believe that the opportunities for improving cities come through radical transformation poised to increase real estate values and cash flow, instead of through organic growth and change over time. In such a mind-set, real history plays a very small role. Development with a patina of history has been popular for the past few decades, which might give the impression that preservation is sacrosanct. Still, the past is on probation. When cities are understood solely in terms of development opportunities, everything is up for grabs.

Such thinking may explain why many European cities, rich in historic fabric, welcome bold new buildings while American cities, as a rule, do not. "Sometimes we see proposals where the architect has ignored almost all the rules, but the designs would really work in the historic context," says Pamela W. Hawkes, a principal of Ann Beha Architects, about her experience on Boston's Landmarks Commission. Nevertheless, she says, she votes against such designs for fear of what might happen next. "The developer might fire this architect and hire one who doesn't get it, or the next developer might come along with a bad design that violates the rules, and point to the other building as a precedent." She says she'd like to see Americans embrace exciting new buildings as in Europe, but adds, "We don't have the depth and density of historic fabric—or a history of change."

The charge that preservationists are the enemies of progress has been made for so long and so often during the past half century that those in the movement tend to shrug it off. Jerold Kayden, a professor at Harvard Graduate School of Design and chief counsel on constitutional matters for the National Trust for Historic Preservation, argues that today's controversies about razing landmarks and building new structures in historic districts are no more numerous or contentious than they were in the past. He believes that the Hollein building in Harvard Square would have been rejected at any time in the past three decades. "There is an idea here that quaintness is 'authenticity,' and people have trouble seeing a new style as part of it," he observes. "Brick has always held a hegemonic position here. What is hopeful and surprising is that the building was proposed and seriously discussed."

As preservationists point out, the job of their movement is to be conservative in the material, if not the political, sense. If preservation were to advocate replacing existing urban fabric with avant-garde construction, they contend, it wouldn't be playing its role in the civic and cultural dialogue. "I understand their position," Koolhaas said of the opposition to his Prada design. "It is good for the city that somebody is defending it."

Yet even among preservationists, a greater hunger for the future—a desire for buildings and cities that embody the new as well as the old—seems to be emerging. It is part of a more general impatience with a ruminative culture, in which the ephemeral never really goes away, but simply gets chewed over again and again. Hundreds of television channels rerun old sitcoms, bad movies get remade again and again, and advertising campaigns attempt to induce consumer nostalgia for things, like the Coca Cola bottle, that don't ever disappear. It's not surprising that such a culture would produce ersatz urbanism à la *Nick at Nite*.

Preservationists have often benefited from participating in that culture. So have architects who deploy elements and forms from historic architecture to create cheerfully pseudo-historic buildings. Now both

IT'S NOT SURPRISING THAT SUCH A CULTURE WOULD PRODUCE ERSATZ URBANISM À LA NICK AT NITE.

groups, along with many others, are nursing a post-millennial hangover, and pondering what should happen now.

Some preservationists believe their movement will gain energy and support from opposing big-box retailers and exurban sprawl. Others argue that they will have to come together with architects to form creative approaches to difficult landmarks, such as Philadelphia's Eastern State Penitentiary and Boston's Charles Street Jail. Buildings of this sort don't evoke sentimentality, and their renovation will require understanding of what's important about them and what will enable them to have a future.

In a sense, preservationists and architects are still recovering from Postmodernism, and they both yearn for something real. But if some preservationists seem nostalgic for imagined pasts, some architects seem nostalgic for a bygone heroic future, when it seemed as if architects could make a better world. ■

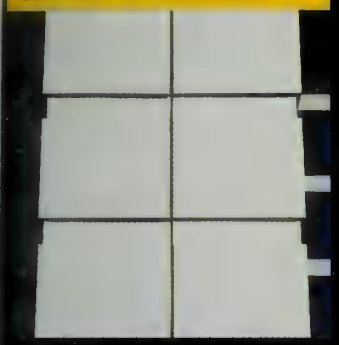


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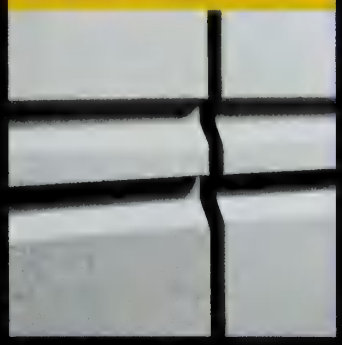
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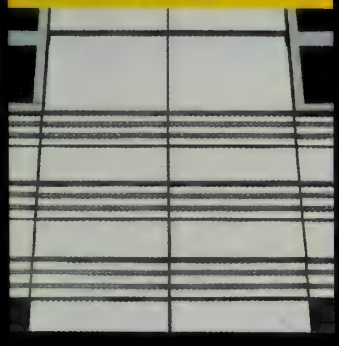
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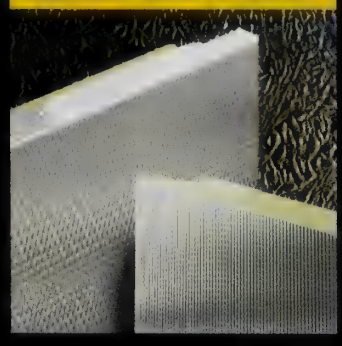
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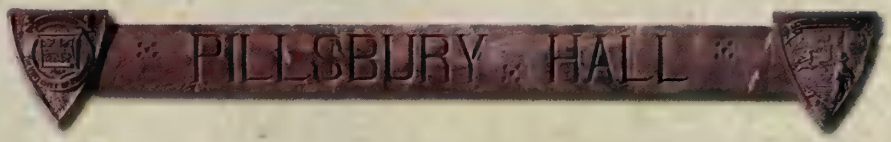
CIRCLE 46 ON INQUIRY CARD



Pillsbury Hall, one of the architectural treasures of the University of Minnesota, was completed in 1889 as a home for the teaching of basic sciences. The Romanesque building was designed by noted architects Leroy S. Buffington and Harvey Ellis.

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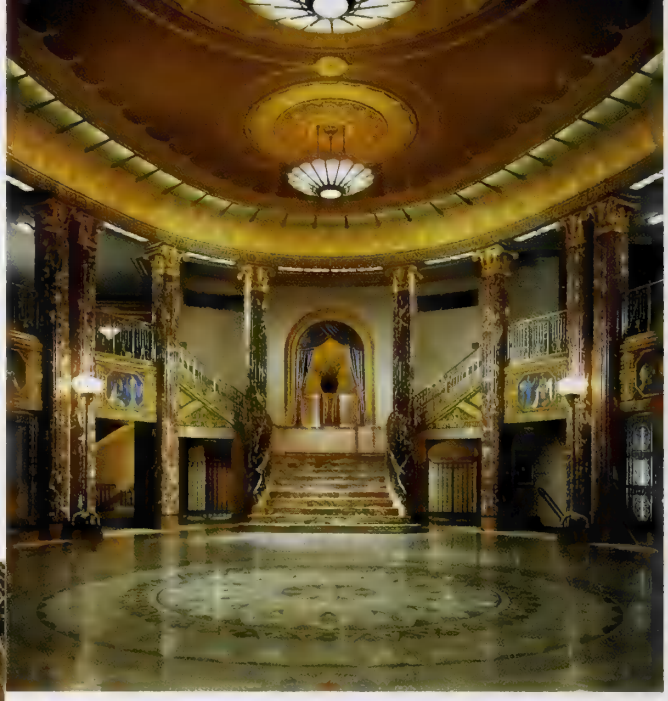
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AMERICAN PRESERVATION:

Revering the Past

A roundup of recent projects displays work at the forefront of restoration





CLEVELAND'S PREMIER SYMPHONY SPACE IS RETURNED TO GRACE

Built in 1931, Severance Hall is a gem on the necklace of Beaux-Arts structures strung along Cleveland's University Circle, an urban park and cultural district. The 2,000-seat hall's original design by Walker and Weeks blended traditional and modern elements, with flamboyant flourishes of Art Deco. The interior was awash with silver surfaces, counterbalanced by blue carpet and upholstery. The proscenium featured an English point-lace pattern, balconies displayed more streamlined elements, and the ceiling employed a process called *pastaglia*—aluminum-leafed canvas laid over a smooth coat of plaster. The restoration team, headed by design architect David Schwarz, refurbished the interiors, reconfigured space, built an addition, and added backstage facilities, technical systems, an acoustical shell, and amenities including a restaurant and reception rooms.

Project: *Severance Hall, Cleveland*
Architects: *Walker and Weeks (original); David M. Schwarz Architectural Services (design architect); GSI Architects (architect of record)*
Consultants: *Sonya Winner-Smith (restoration); Fisher/Dachs (theater); Jaffe Holden Scarbrough (acoustics); Gensert Bretnall Associates (structural engineer of record); EverGreene Studios*

THE HISTORY OF SAVING HISTORY

By Thomas Mellins

Thomas Mellins, an archite[illegible]an who writes frequently for RECORD, [illegible] York 1880, New York 1930, *and* New [illegible]

In 1963, no one was able to save McKim, Mead & White's masterful Pennsylvania Station. A true New York City landmark since its completion in 1910, the building was demolished and its remnants shamelessly scattered in a New Jersey swamp. Today, across the country, news that even a rather ordinary nineteenth-century building might succumb to the wrecker's ball often sets off highly organized protests. Why were we complacent for so long about preserving our architectural history? And what caused a sea change in our attitudes?

Traditionally, Americans have held dear the belief that we can invent not only our own personas, but also our personal pasts. We are all Lone Rangers—heroes from nowhere. And we have consistently searched for the "new," believing the best is yet to come. Yet our sense of freedom and our optimism have a dark side; we suffer from a fear of history.







AN EXEMPLARY PRAIRIE HOUSE BY FRANK LLOYD WRIGHT IS SAVED

Commissioned by Ward W. Willits for his family, the house in Highland Park, Illinois, designed by Frank Lloyd Wright in 1902 is paradigmatic of the Prairie School style with its cruciform plan, use of timber framing, centrally located fireplace, and broad, low overhanging roofs.

In 1983, new owners Milt and Sylvie Robinson retained John Eifler of Eifler & Associates in Chicago to oversee the extensive restoration project. Among other matters of concern, the interior woodwork was stained a dark brown, and the walls were painted white—a contrast Wright never intended. Art glass windows and original doors were missing, and extensive problems were found on the roof.

Although Wright designed furniture for every corner of the house, at the time of purchase none of it remained. Some pieces have been recovered or reproduced, and the remainder of the furniture is in character with the house—Arts and Crafts, mostly by Gustav Stickley and Charles P. Limbert.



Project: *Ward Willits House, Highland Park, Ill.*
Architects: *Frank Lloyd Wright (original); Eifler & Associates (restoration)*
Consultants: *James Raab (custom cabinetry and furniture); Robert A. Furhoff (historical paint); Nikolaus Wenz (art glass restoration)*

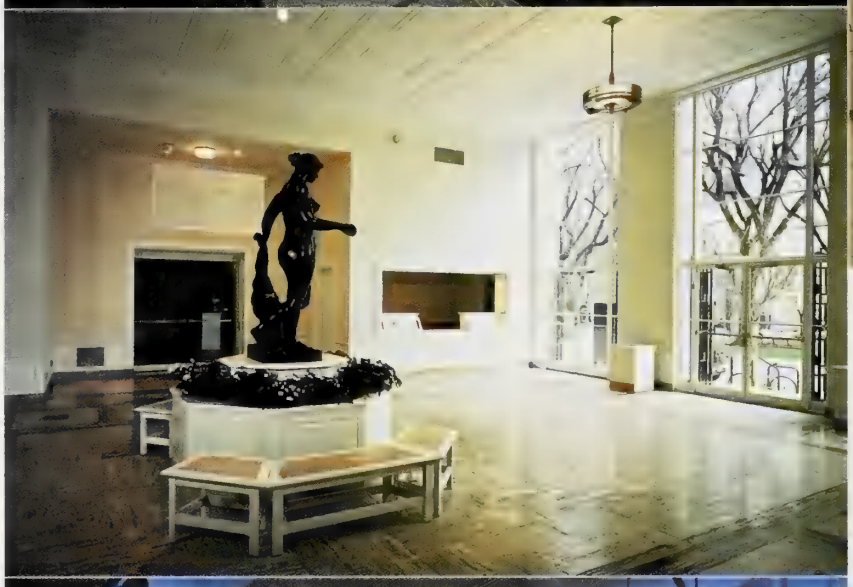
There have been notable exceptions to this tendency. In 1853, Ann Pamela Cunningham founded the Mount Vernon Ladies' Association and worked tirelessly to preserve George Washington's house as a national shrine. Her success spurred others to action. The Association for the Preservation of Virginia Antiquities and the Society for the Preservation of New England Antiquities were founded in 1888 and 1910, respectively.

By the 1920s, those with long family histories on this continent dominated preservation efforts. The message was clear: We got here first, we built with grace, and our vision and initiative defined a nation. Colonial America became the principal focus. The restoration of Williamsburg, Va., financed by John D. Rockefeller and begun in 1926, epitomized this trend.

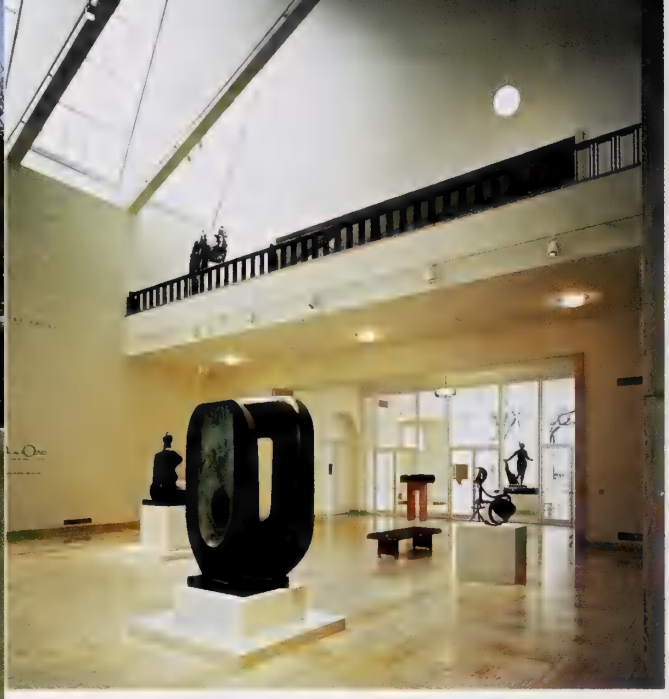
In 1949, the private, nonprofit National Trust for Historic Preservation was established through an act of Congress. Now one of the nation's most powerful preservation organizations, with more than 250,000 members, it annually identifies the country's "11 Most Endangered Historic Places."

In 1965, another influential organization, the World Monuments Fund, was established to promote architectural preservation internationally, including within the United States. Like the National Trust, it also calls attention to threatened buildings and places. In light of the recent destruction of the World Trade Center, the organization focused con-









BEHA REFURBISHES A BELLUSCHI COMPLEX FOR A MODERN MUSEUM

Three Modernist buildings designed by Pietro Belluschi in the 1930s anchor the Portland Art Museum in Oregon. The museum's final gallery was added in 1938, and by 1994 the facility required more space. Over six years, Ann Beha Associates of Boston renovated and expanded the buildings, added a public sculpture garden, and converted an adjacent art school—also by Belluschi—to new galleries. The $20 million project encompassed 60,000 square feet, of which 47,000 square feet is dedicated to the permanent collections, which are rich in twentieth-century art.

Beha says the project team tackled three challenges: to preserve the Belluschi legacy while updating building systems; to add exhibition space without expanding the footprint; and to integrate the structures as one cohesive museum. The project brought the former sunken terrace of the art school up to grade, creating a sculpture plaza at street level and an auditorium for film, lecture, and music programs below.

Project: *Portland Museum of Art, Portland, Ore.*
Architects: *Pietro Belluschi (original); Ann Beha Associates (restoration); SERA Architects (associate)*
Consultants: *Altieri Sebor Wieber, KPFF (engineers); Delaney, Cochran & Castillo (landscape design)*

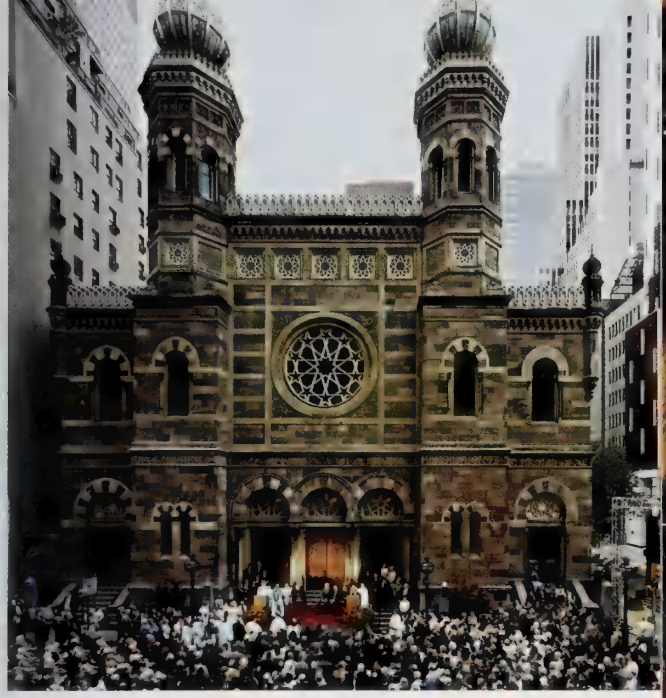
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cern on lower Manhattan by making Historic Lower Manhattan the [illegible]te on its biennial Watch List.

While private-sector efforts continue to be crucial, for decades the government has been a key player. Many people mistakenly believe New York City's preservation law was the nation's first. In fact, the city council of Charleston, S.C., led the way in 1931, ratifying a zoning ordinance for the country's first historic district. A municipally managed architectural review board provided regulatory control. Five years later, an amendment to the Louisiana state constitution legally upheld New Orleans' Vieux Carré Commission, established in 1925, and granted it police power. Other cities and towns, including Natchez, Miss., Annapolis, Md., and Newport, R.I., soon followed



The Skinner-Trowbridge House, designed by Town and Davis in 1832, has been renovated by Helpern Architects for Yale's School of Management.







HHPA BRINGS CRAFTSMANSHIP TO NEW YORK'S CENTRAL SYNAGOGUE

The skillful restoration of New York's Central Synagogue after a devastating fire in 1998 is what Hugh Hardy, of Hardy Holzman Pfeiffer, calls "interpretive." Most of the intricate elements of the ornate Moorish-style building designed by Henry Fernbach in 1872 have been faithfully returned to their original state. Since the fire destroyed everything above the clerestory windows, the roof's timber trusses were rebuilt, and the red and dark gray slate shingles reinstated. Gold leaf has been reapplied to the finials, ribs, and decorative bands of the onion domes, while two smaller copper finials—not in evidence since 1920—were reconstructed. Inside, artisans reconstructed plasterwork and floor tiles, restored black walnut and ash wainscoting and woodwork, and masterfully painted elaborate stenciled patterns on the walls, ceiling, and cast-iron columns. The new walnut and ash pews are now angled along the sides of the sanctuary; the floor level of the entrance vestibule was lowered, and a multipurpose room was created downstairs.

Project: *Central Synagogue, New York City*
Architect: *Henry Fernbach (original); Hardy Holzman Pfeiffer Associates (restoration)*
Consultants: *DPK&A (restoration); LZA/ Thornton-Tomasetti (engineer)*

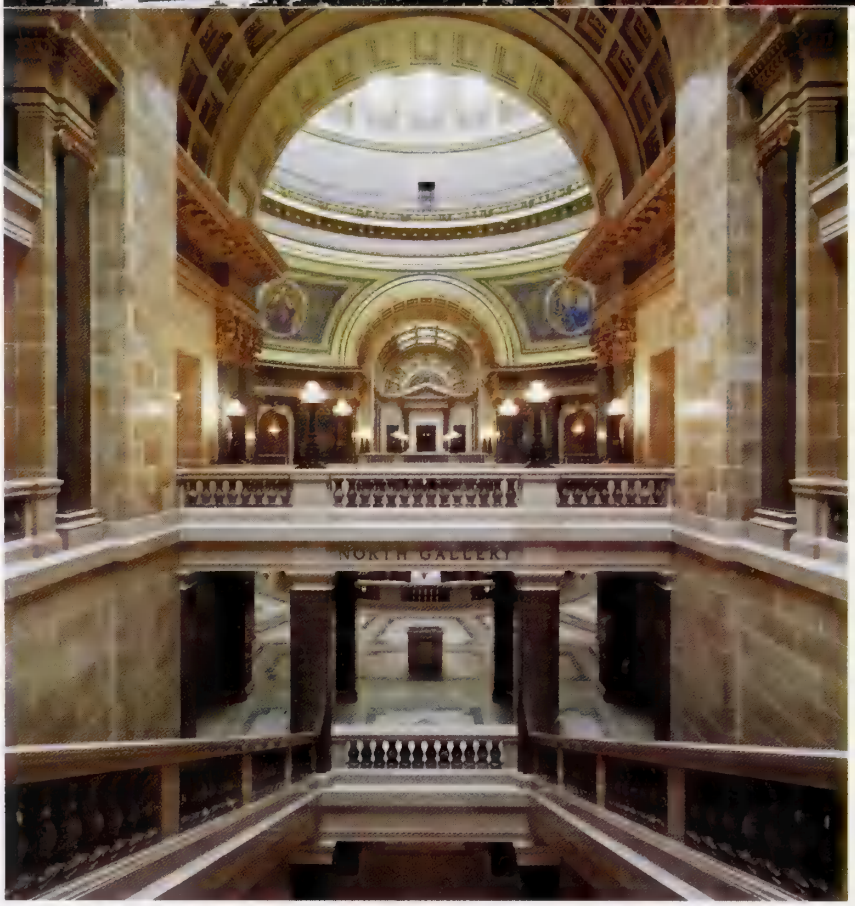


suit. Currently, around 2,000 municipalities nationwide have preservation ordinances.

In characteristic fashion, New York City, though far from being the leader, has done things on such a big scale that it has appeared to be charting new territory. Initially, the city's Landmarks Preservation Commission, founded in 1965 when Penn Station was still being dismantled, made rather safe choices, and some great buildings slipped through its fingers. Still, the commission rapidly moved beyond the historic-house paradigm to protect settings for commercial and cultural activity. The commission also championed adaptive reuse as a preservationist strategy. The federal government has been an important agent of preservation, as well. In 1933, the Department of the Interior established the Historic American Buildings Survey; the following year, the AIA and the Library of Congress became cosponsors of the project. Government support of preservation







WISCONSIN'S CIRCA 1917 CAPITOL SHINES AFTER A 13-YEAR REHAB

After a multiphase restoration spanning 13 years at a cost of $141 million, the Wisconsin State Capitol looks—and operates—better than ever. Designed by George B. Post & Sons (architects of the New York Stock Exchange), the Capitol cost $7.3 million to construct between 1906 and 1917, replacing a building destroyed by fire. In part, Post got the job because of his work at the World's Columbian Exposition in Chicago in 1893, where he designed the Court of Honor's Manufacturers and Liberal Arts Building.

A team led by Isthmus Architecture cleaned and repaired the granite facade, restored the rotunda and public spaces, and rehabilitated four wings—upgrading telecommunications, electrical, and technical systems. Sectors were isolated one by one, then restored or reconfigured. The project transformed an aging government center that, in classic bureaucratic style, had become a hodgepodge of stopgap remodeling. *Project profiles by William Weathersby, Jr.*

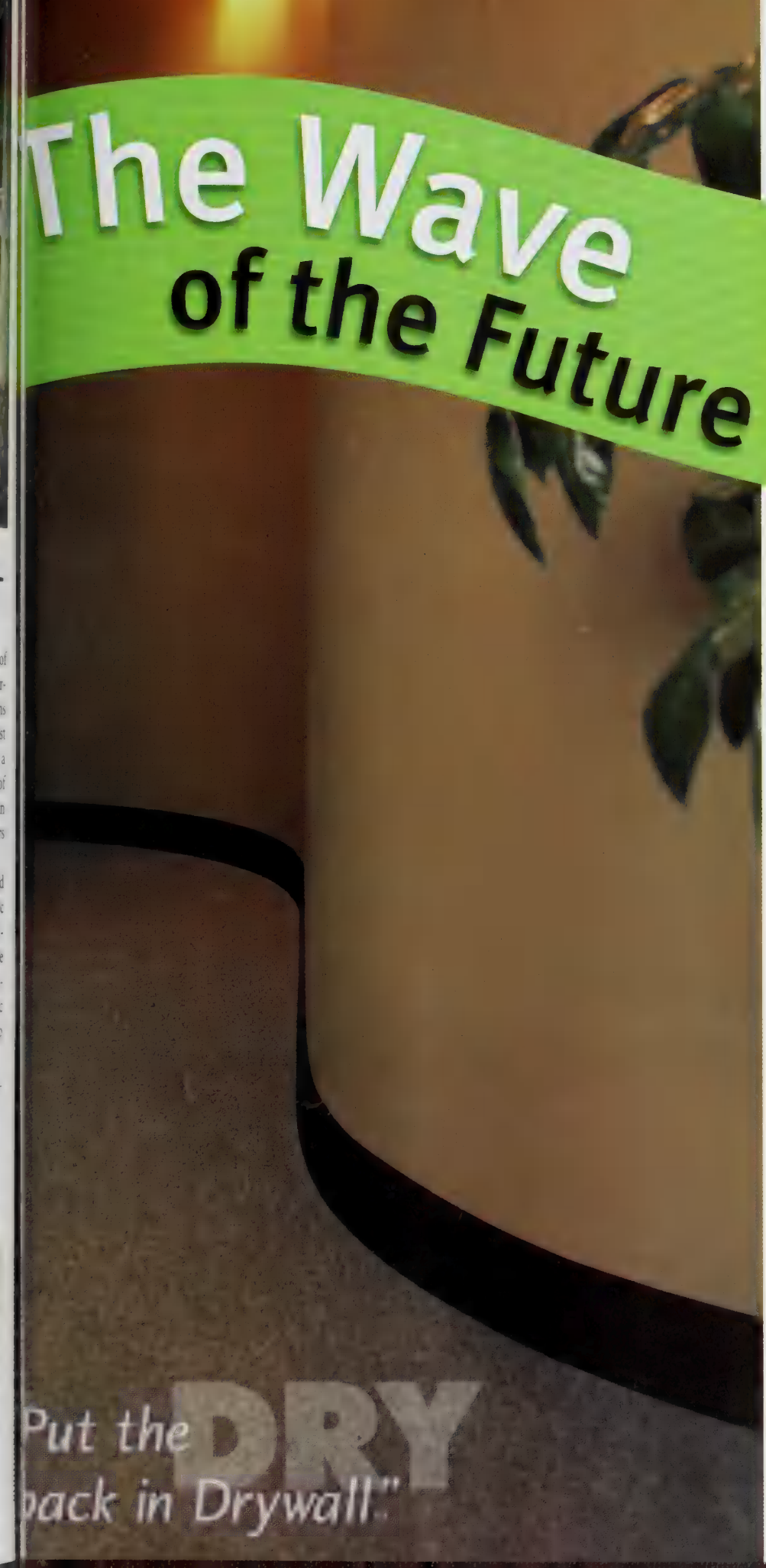
Project: *Wisconsin State Capitol, Madison, Wis.*
Architects: *George B. Post (original); Isthmus Architecture (restoration)*
Consultants: *J.P. Cullen & Sons (contractor); Dan Steffan (Wis. Dept. of Administration senior manager); Anne Biebel (historian); Rebecca Garland*

increased in 1966, with the establishment of the National Register of Historic Places. In 1982, the passage of tax-incentive legislation encouraged the renovation of historic buildings.

Though broadly supported by the public, preservation has nevertheless faced strong opposition. In the 1970s, when real estate developers sought to overturn the New York City Landmark Preservation Commission's designation of Grand Central Terminal, the battle went as far as the United States Supreme Court. The court ruled in favor of the commission, and the decision was widely regarded as a boon to legally mandated preservation.

Preservationists can be justly proud of their achievements, yet a particular strain of our collective fear of history persists. We continue to be slow to recognize the value of the architecture of the recent past, especially International Style buildings of 1950s and '60s. Ironically, it is precisely those Modernist buildings, once criticized for turning their backs on history, that currently call out to be protected. The efforts of the preservationist group DoCoMoMo have been pioneering in this regard (see page 141). Indeed, if future generations are to be able to examine, learn from, and enjoy our rich and complex architectural heritage, we must save buildings that were dismissed—or even reviled—only decades ago. ■

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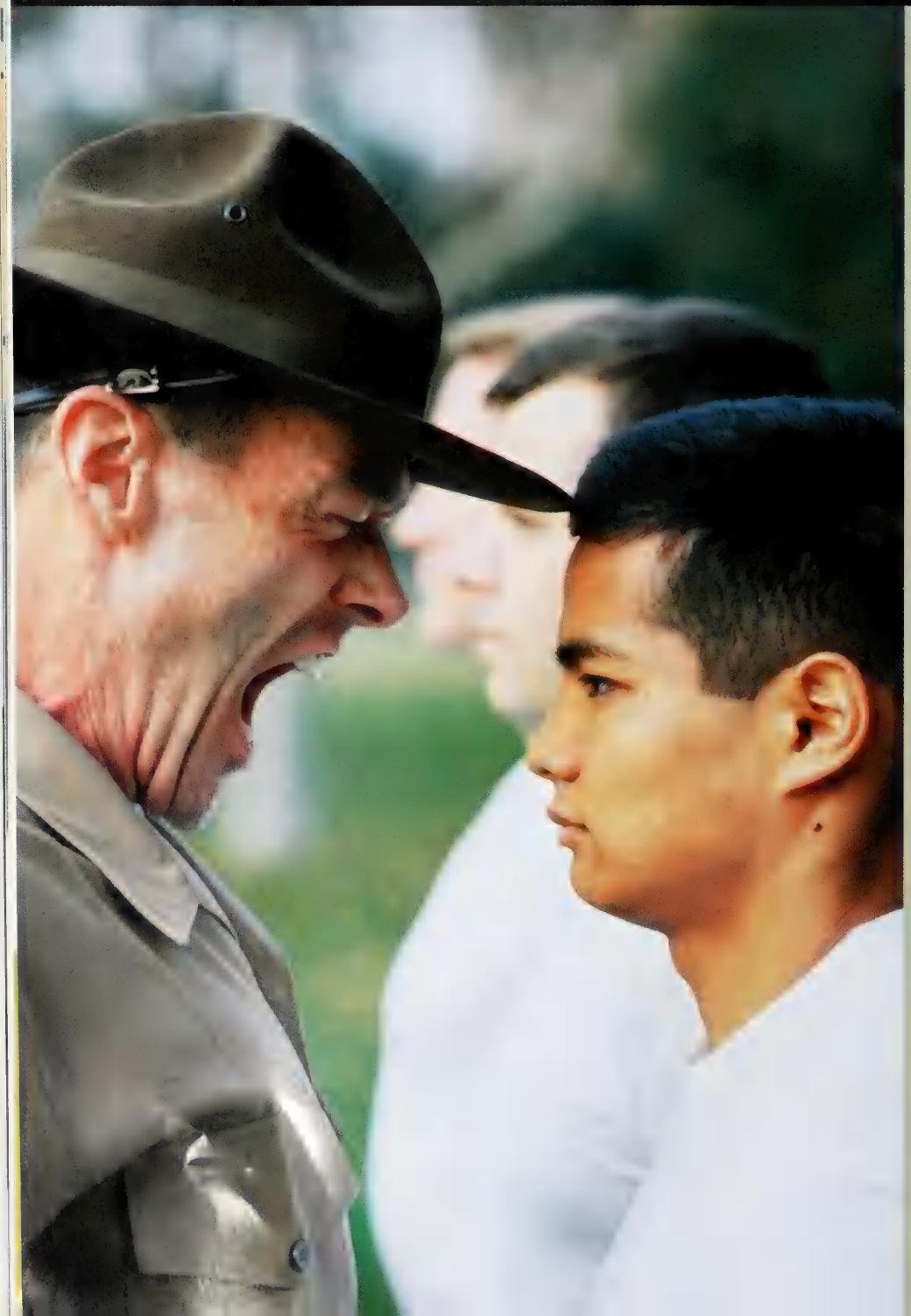
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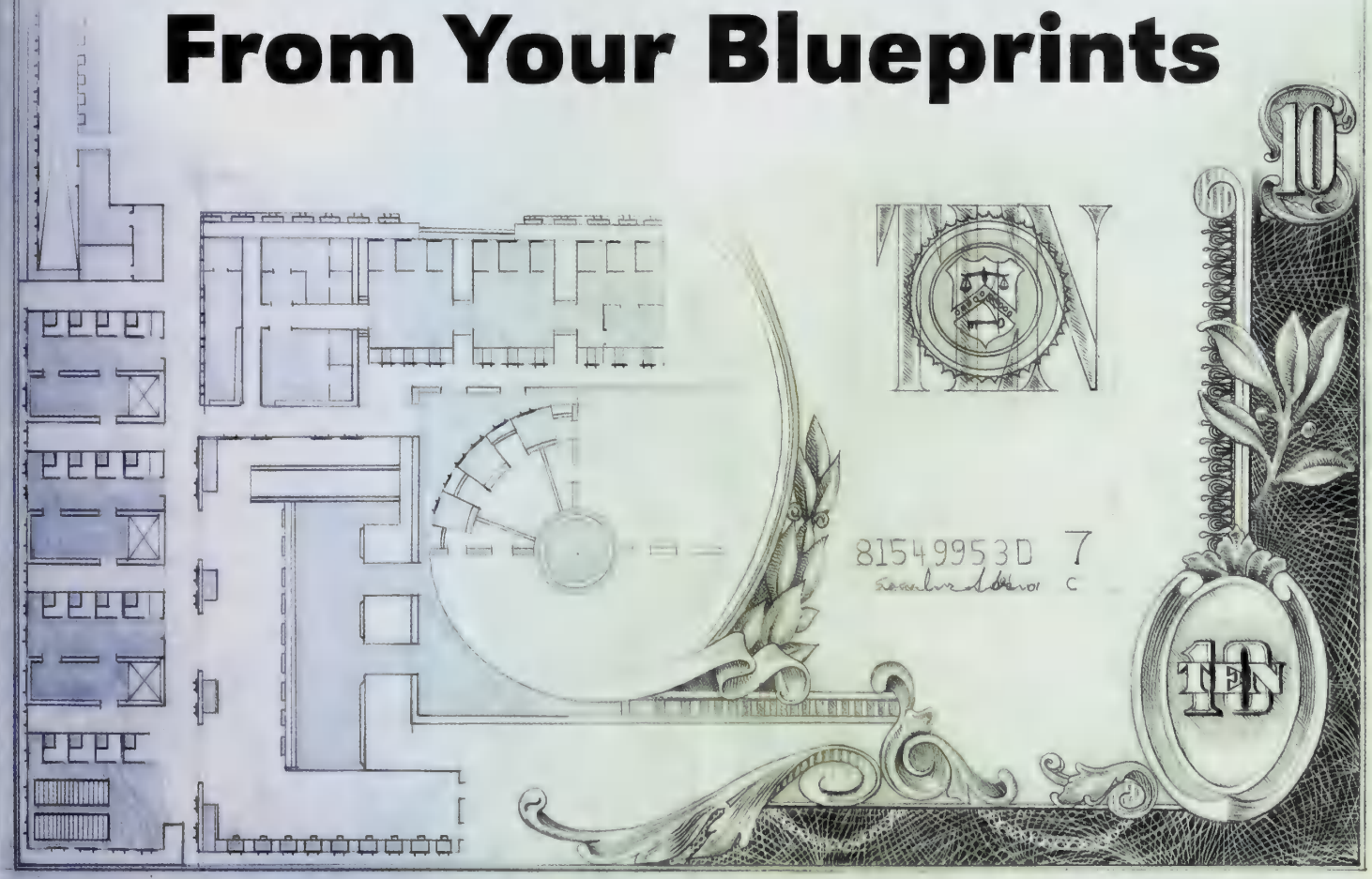
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The dialogue between old and new

By Suzanne Stephens and Sara Hart



Gasometer B (top left); Centre d'Archives de Montréal (top right); Magna Science Adventure Centre (bottom left); Collège Gérald-Godin (bottom right).

Dialogue or tense standoff? At a quick glance, the projects on the following pages may seem to be brazen encounters between the new and the old. In designing additions and adaptive reuse schemes for original structures, the architects involved have chosen not to replicate, reinterpret, or be overly deferential to the existing architecture. They are searching for responses to preserving buildings that are "real"—responses that speak authentically to this particular moment. As the Gasometer B by Coop Himmelb(l)au in Vienna shows (page 108), a grating dissonance can energetically punch up distinctions between architectural periods and between past and present conceptions of what a residential complex should look like. In other cases, such as Dan Hanganu and Provencher Roy's Centre d'Archives de Montréal (page 128), or Saucier and Perrotte's Collège Géral-Godin, in Sainte-Geneviève, Quebec (page 116), distinctiveness, not confrontation between the old and the new, is key. With the Magna Science Adventure Centre (page 122), a science museum inserted into a former steelworks in Rotherham, England, Wilkinson Eyre demonstrates how a new design for a contemporary program can simultaneously engage the older form and its former use. In spite of tough, even gritty, formal vocabularies, materials, and construction techniques, each project manifests an underlying unity of proportion and scale with the preserved structures. While asserting the independence of the new, they both respect and dramatize the identity of the old. ■

Contemporary architecture engages the old with boldness and brashness—but only on the surface.

PHOTOGRAPHY: © MARGHERITA SPILUTTINI (TOP LEFT); MICHEL BRUNELLE (TOP RIGHT); WILKINSON EYRE (BOTTOM LEFT); MARC CRAMER (BOTTOM RIGHT)



A "shield" of new apartments (this page) conveys a fresh image for the masonry drums (opposite), which look as if they have defended the Danube River plain for centuries.

Coop Himmelb(l)au challenges preservation orthodoxy in the GASOMETER B project by making stolid former fuel tanks dance

By James S. Russell, AIA



Americans can be zealous in defending old buildings, even rather ordinary ones, because the patina of history seems to confer a kind of authenticity no new structure can hope to attain. An adaptation in the style of the old—however watered-down it may be—remains the predominant mode of dealing with historic structures. In this there is an apparent kinship with the Viennese. They are justly proud of one of the most appealing historic centers on earth, with its intricate medieval streets, its festive Baroque palaces, and the over-the-top bombast of its monument-bedecked Ringstrasse.

"The center has been the mental map for every Viennese," says Wolf Prix, partner in the local firm Coop Himmelb(l)au. "They think it is the ideal city, and so they have prohibited modern development." Prix thinks this "monocentric city" is a "closed system," adding, "it is not dynamic." Coop Himmelb(l)au has built a career in part by trying to shake the Viennese out of their urban complacency. It's been an uphill battle, but an instructive one for Americans trying to figure out how to weave together cities made of increasingly disparate fragments. Although the firm has been around since 1968, it first captured the design world's attention with a 1987 law-office suite that looks like a glass-and-steel prehistoric insect poised to pounce from the edge of a placidly dull central-city palazzo. That was their last project in the historic core.

In the tattered industrial district of Simmering, near the southeastern edge of the city, a slim, canted and tilted tower seems almost to prance and shimmy next to four hefty masonry drums that dominate the area. This is how Coop Himmelb(l)au builds what it regards as an authentic architecture—one that reflects both history and contemporary reality—and permits a pattern of urban growth that historic Vienna could never sustain.

The addition is an icon for a program of adaptive reuse that is anything but ordinary. The 230-foot-diameter masonry cylinders, built in 1896, were once gasometers, their bristling crenellations enclosing huge fuel storage tanks. Normally such structures have been built as straightforward works of tank engineering, with little architectural embellishment. But the original designer, Franz Kapaun, surrounded the usual industrial inner workings with a Hapsburg-era fantasia in brick on a Niebelungen-castle theme. By the time the tanks became obsolete, the city regarded the masonry garb as of landmark quality and searched for a permanent means of reusing the structures.

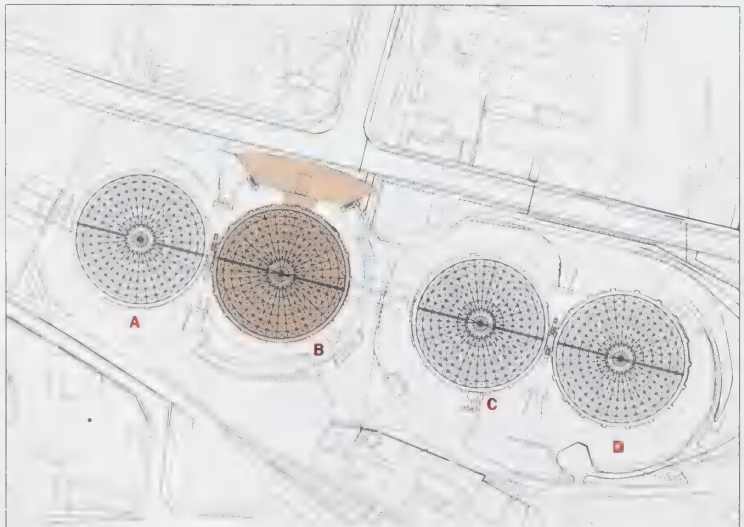
Giving a fuel tank a future

A peculiarity of urban development in Vienna, according to Prix, is that growth is led not by private-office or other commercial development, but by the city government, and it usually comes in the form of social (publicly subsidized) housing. "Its social-housing program is a very specific Vienna tradition," says Prix. "It was the point of departure for the project." The city sold the site to developers, who chose an architect to redesign each tank through a design competition (next page). The program called for 600 housing units for all four towers, with some office space and a street of shops that would run through all of the buildings.

Each architect chose a different path. Jean Nouvel designed great brooding piers of dark glass and polished metal, rising to a round oculus. Wilhelm Holzbauer picked up the arcuated theme of the exterior in the interior, and painted ranks of arches with cheerily Tuscan pastels. Manfred Wehdorn built in a modest, conventionally modern mode, with

Project: *Gasometer B, Vienna, Austria*
Client: *GPA-Wonbauvereinigung*
Architect: *Coop Himmelb(l)au—Wolf D. Prix, Helmut Swiczinsky, Josef Weichenberger, Rainer Enk, Friedrich Hähle, Stefan Hochstrasser, Martin Mostböck, Stefan Fussenegger, Andreas Mieling, Georg Kolmayr, Ana-Claudia Gonzales, Ronald Kesmann*
Engineers: *Fritsch Chiari & Partner; Stella & Stengl (structural); Büro Bacher (HVAC);*
Contractor: *VOITL HABU-GERSTL*

PHOTOGRAPHY: © ALEXANDER ROLLER (TOP 2 SHOTS), HIMMELBLAU (TOP)



A. *Jean Nouvel, architect*
B. *Coop Himmelb(l)au, architect*
C. *Manfred Wehdorn, architect*
D. *Wilhelm Holzbauer, architect*

white stucco and rectangular recesses.

Coop Himmelb(l)au's Gasometer B turned out to be the most ambitious of the four. Within the restored masonry cylinders, the architect and engineer Fritsch Chiari & Partner devised an entirely separate concrete structure to support 13 stories of apartments, shops, and offices. A massive circular foundation wall encloses a 3,000-seat performance hall at grade (section, page 112). The enormous weight of the floors above is cantilevered over the top of the hall (sealing it acoustically by separating it structurally) by radial vertical walls held to the foundation ring by what is described as a "tension belt." A massive, circular, horizontal plate below the fifth apartment level props up the vertical walls. This structural bravura is only revealed at the cable-suspended glass and concrete oculus (page 114) that opens a view from the shopping concourse up the center of the cylinder.

Are landmarks too sacred?

Prix compares the contrast of the new and old construction within the cylinders to the Theater of Marcellus, one of ancient Rome's vast amphitheaters. Through the centuries the theater has sprouted accretions—primarily residential—while still retaining much evidence of its

PHOTOGRAPHY: © GERALD ZUGMANN (THIS PAGE AND OPPOSITE, TOP)

past: A Baroque facade may bump up against a medieval pier supported by an ancient arch. "People took what they needed to take and just improved on it as they wanted," says Prix. "It's an attitude about landmarks that says they are not sacred. We should find new programs for them as well as preserving them. It's what keeps a city alive."

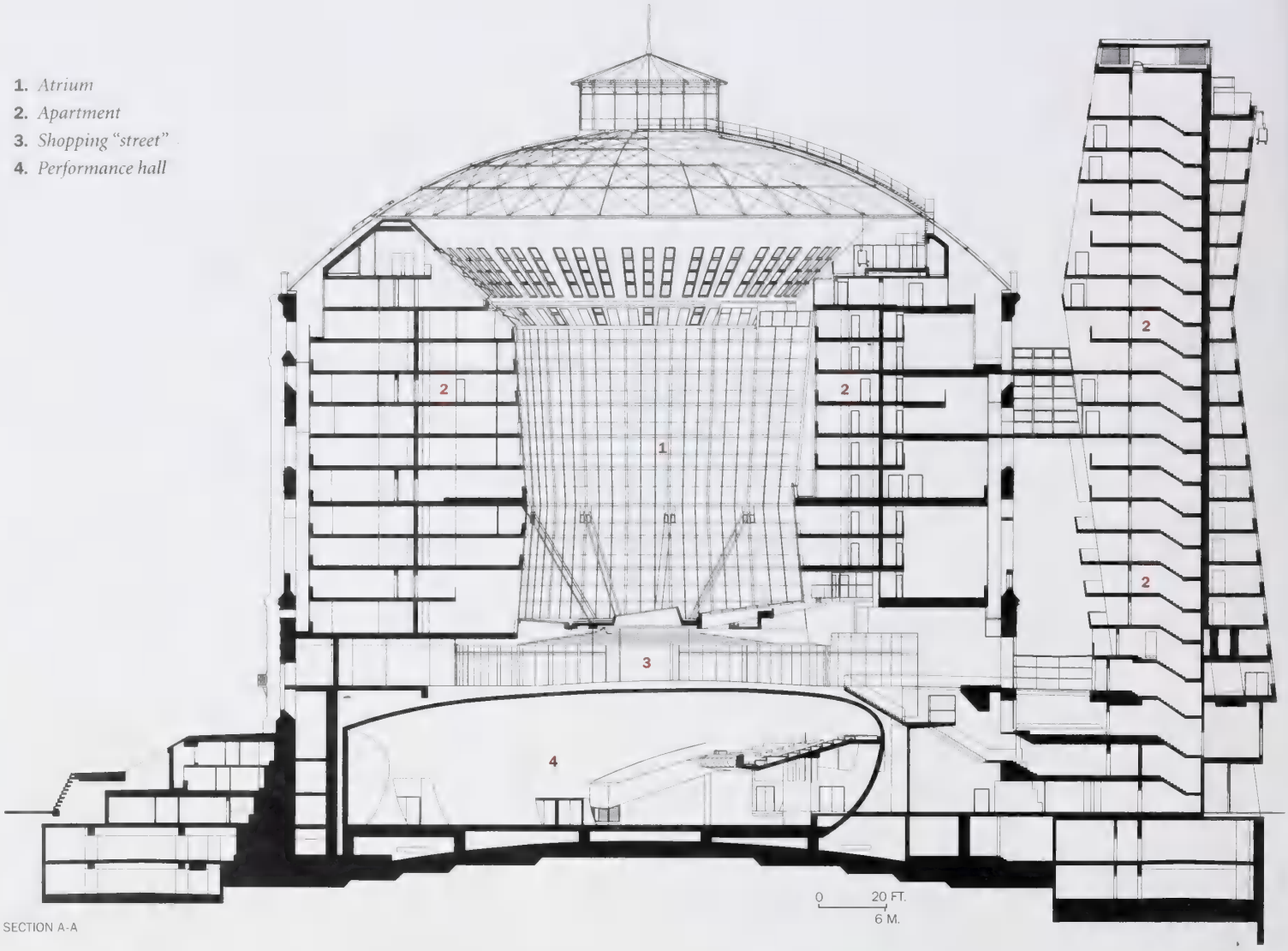
Although Prix calls the 22-story building attached to the gasometer cylinder a shield because of its shape, symbolically he regards it as "a sign to show that the old buildings now have a new program." (None of the other tanks features such external emblems.) Of the 330 apartments in the shield and Prix's Gasometer B, 76 have been set aside as dormitories for a nearby university. He says the additional units in the shield were needed to make the project work financially. The shield units are single-loaded from the gasometer side and many are duplexes, which reduces corridor square footage and the number of elevator stops.

Prix describes the addition's geometry as "the structure built into the void of the cylinder unrolled." The shield makes no deferential gesture to the beefy bulk of the gasometers. Indeed, from some angles it entirely obscures its host tank. Prix is unapologetic. "We should be very self-confident that our new architecture is at least equal to what was there.



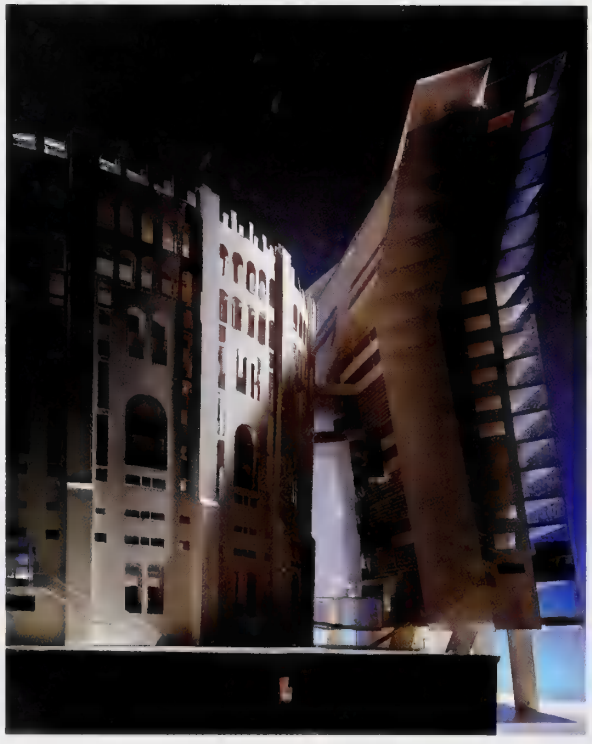
Landmark authorities allowed few alterations to the historic cylinders themselves, but they did permit discreet vertical slots to be carved adjacent to the external piers—assuring daylight to all the apartment units within.

1. *Atrium*
2. *Apartment*
3. *Shopping "street"*
4. *Performance hall*



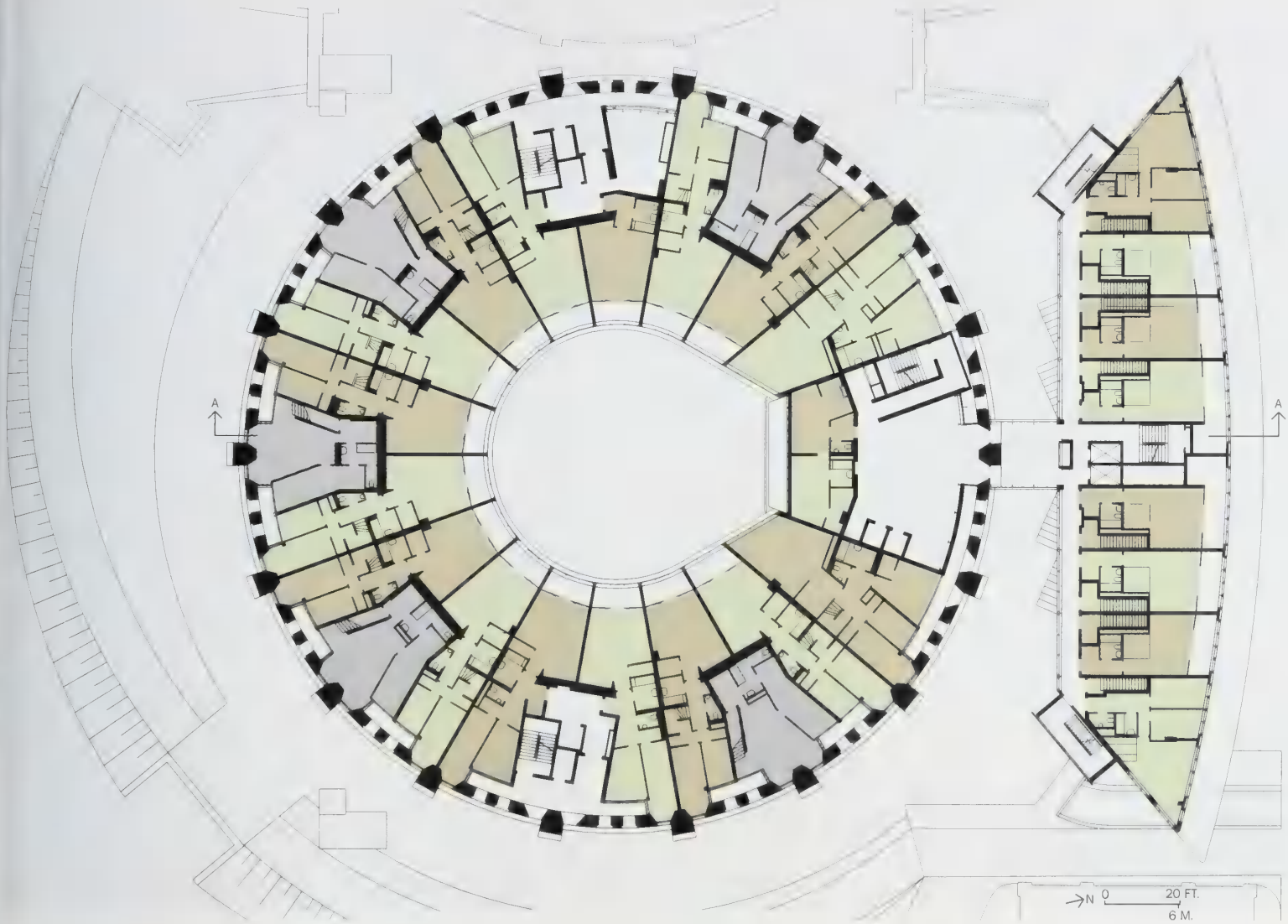
SECTION A-A

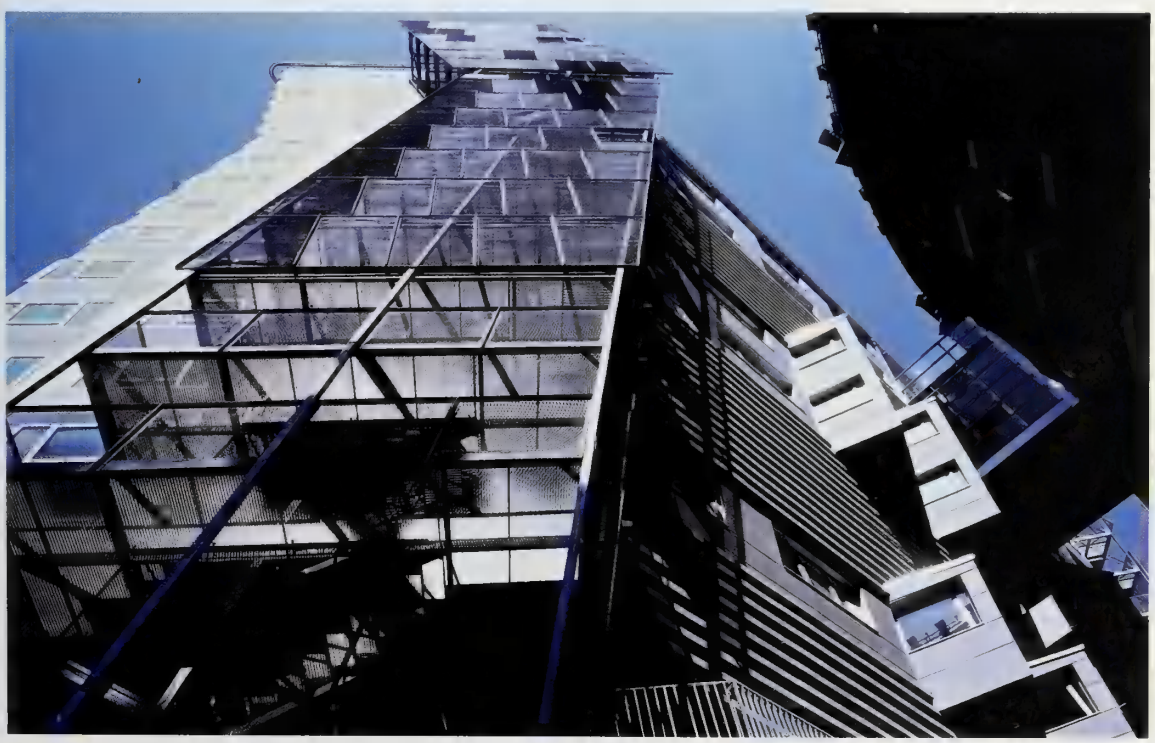
Apartments within the cylinder are reached by central corridors accessed from three cores. (Corridors are not visible because upper levels of duplex units are shown in plan, opposite.) While the exterior side of the shield structure is visually stretched like a taut skin, the architect added horizontal grids as wind protection for open galleries facing the tank.





PHOTOGRAPHY © GERALD ZUGMANN


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The oblong court within the gasometer (above) opens to restored roof framing (left). Cable struts attached to an upper-level slab suspend the shopping street roof and oculus (opposite, right). The layer of new glazing forms a scrim in front of the fragmentary landscape views framed through the arched openings of Franz Kapaun's old walls (opposite, left).

If we believe in what we're doing, we should use landmarks, not just push them empty into the foreground."

And indeed this sinuous slab has a larger agenda, to mark an otherwise characterless quarter of the city, helping spur investment by giving it a memorable image. Augmented by the presence of a new subway station and a nearby highway extension, the area has attracted considerable new commercial and residential redevelopment. It's one of four in-city districts seeing substantial construction as high-density mini-downtowns. From the top of the Stephensdom at the center of town, one now sees skyscrapers marking these developments. In the "new hot spots" amidst the low-rise city fabric, Prix sees a useful kind of old-new tension creating an identity for Vienna that at last encompasses the entire city, not just the historic area tourists see.

"WE MUST SELF-CONFIDENTLY MAKE NEW ARCHITECTURE AT LEAST THE EQUAL TO WHAT WAS THERE."—WOLF PRIX

Coming to terms with old and new together may be key to the city's survival. Vienna has not become a museum at urban scale as have Florence and Venice, but its population peaked in 1918. The growth and vitality anticipated after the fall of the Iron Curtain is closer to a simmer than a boil. The city, though, is still palpably functioning commercially, but history has been so successfully and strikingly preserved that the many talented architects that live in Vienna look covetously on western Austria, where it has been far easier to hatch inventive work (though typically in the current Swiss mode of powerfully austere yet emotionally evocative forms).

Icon or desecration?

Certainly the Gasometer project's assertive and highly individual form of expression does not go down easily with orthodox historic preservationists, who succeeded in depriving Vienna's enormous new MuseumsQuartier of any contemporary identity on the street [September 2001, page 44]. And there remains so little consensus—in Europe or America—about what makes modern architecture good that there are plenty of people who will disagree with Prix's assertion that his design improves on the original.

But perhaps Prix has understood society's changing relationship to old buildings. Once, only major urban monuments or structures of great age could be thought meriting preservation. That view has broadened, not only in Vienna but in America. Now the U.S. confers landmark status on rusting remains of the nation's industrial heritage as well as neon-festooned roadside diners. But adaptation to match the audacity of Coop Himmelb(l)au's Gasometer project is all but untried in American practice. Instead, design that aspires to offend the fewest becomes the path of least resistance—the path nearly always taken. We not only fear offending peoples' taste, we perceive that an alteration or replacement will be worse than the original. Since we're so unwilling to try anything new, that prophecy too often becomes self-fulfilling.

Coop Himmelb(l)au have achieved something beyond the hyper-expressive baubles that too often ornament contemporary urban pretensions. The wasp-waisted shield building, visually teetering on coyly crossed columns, suggests a big, shy girl at a prom, hoping someone will ask her to dance. Yes, there's nothing shy about the Gasometer. But it's hard not to smile at how stylish and ingratiating this effort is. These are qualities almost never present in the tepid neutrality of so much American "adaptive reuse." Certainly there's a strain of self-described progressive criticism that admires a contemporary look or a kind of daringness alone, but Coop Himmelb(l)au points the way to an architectural newness that is grounded in the real circumstances of inevitable urban transformation. ■

Sources

"Shield" cladding: *Eternit (composition cement board)*
Glass: *ESG (tinted and insulating glass)*
Stainless-steel cladding: *UGINOX*

WWW For more information on the people and products involved in this project, go to Projects at **www.architecturalrecord.com**







Although strikingly different in style from the existing monastery, the addition matches its size and massing (opposite) and creates a forecourt to complement the old cloister.

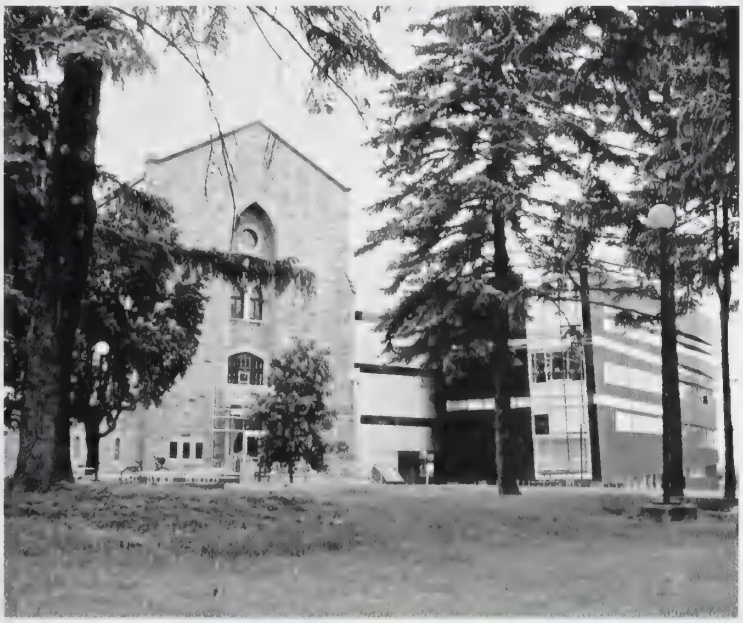
Saucier + Perrotte makes cultural preservation an exercise in modern design at the COLLÈGE GÉRALD-GODIN in Quebec

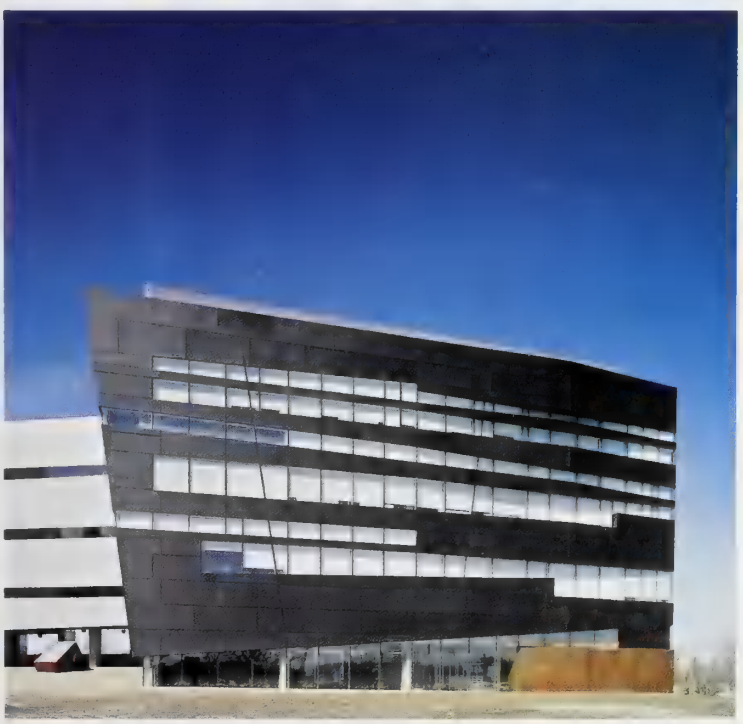
By Paul Byard, FAIA

French Canada is almost surely North America's most ambitious "preservation" project, an ongoing effort by a nation to preserve its identity by maintaining its language and culture. A vivid measure of the investment required for this project is the new Collège Gérald-Godin in Sainte-Geneviève, Quebec, an extraordinary work of old and new architecture that shows how an adventurous addition can discover and, indeed, expand the expressive potential of an old building.

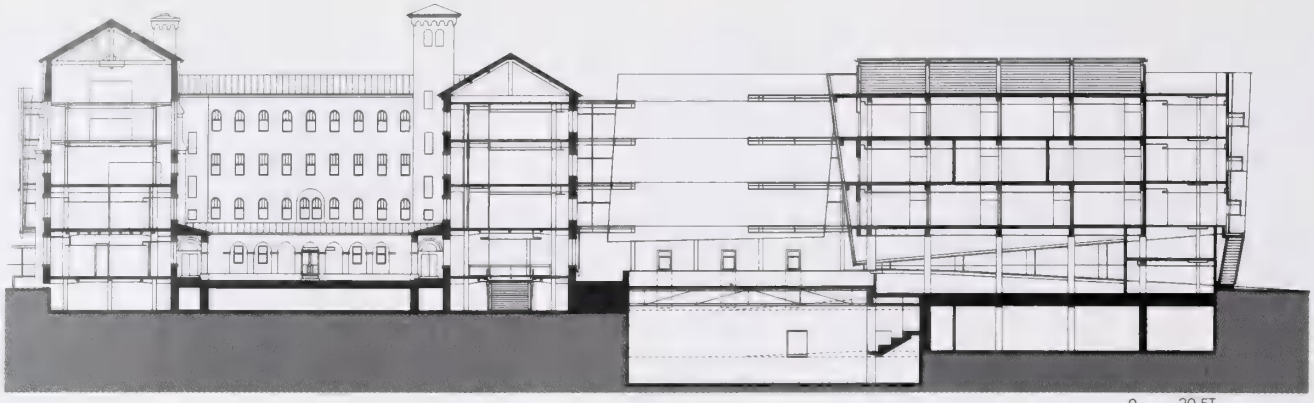
Sainte-Geneviève is a French-speaking hamlet surviving in a sprawl of shopping centers and suburban development beyond Montreal's airport. To strengthen the hamlet as a manifestation of authentic French Canada and induce residents to complete their education in their native language, the provincial authorities established the college in a large abandoned monastery that had long been the town's most prominent building. Erected in 1932 and dressed in a yellow stone veneer, the bulky monastery is "Lombard" the way many downtown YMCAs are "Romanesque": an institutional building of an enduring ordinariness. Wrapping around a closed and cloistered forecourt, the five-story structure stands on a rise with its back to a beautiful view over the wide, slow-moving Rivière-des-Prairies.

To convert the monastery into a college, the Montreal firm of Saucier + Perrotte Architectes designed a startling addition that is almost the same size as the old building but far greater in architectural life and strength. The bold form of the 74,000-square-foot addition looks as if a metal slab had been pulled from one side of the monastery then bent and folded so that one end comes back to face the old building across a new forecourt. While the old building's courtyard was cloistered, the new one's introductory outdoor space is quite different: open and rising toward the view and the horizon. Classrooms, laboratories, and teachers' offices fill most of the new structure aboveground, while a gymnasium, cafeteria,



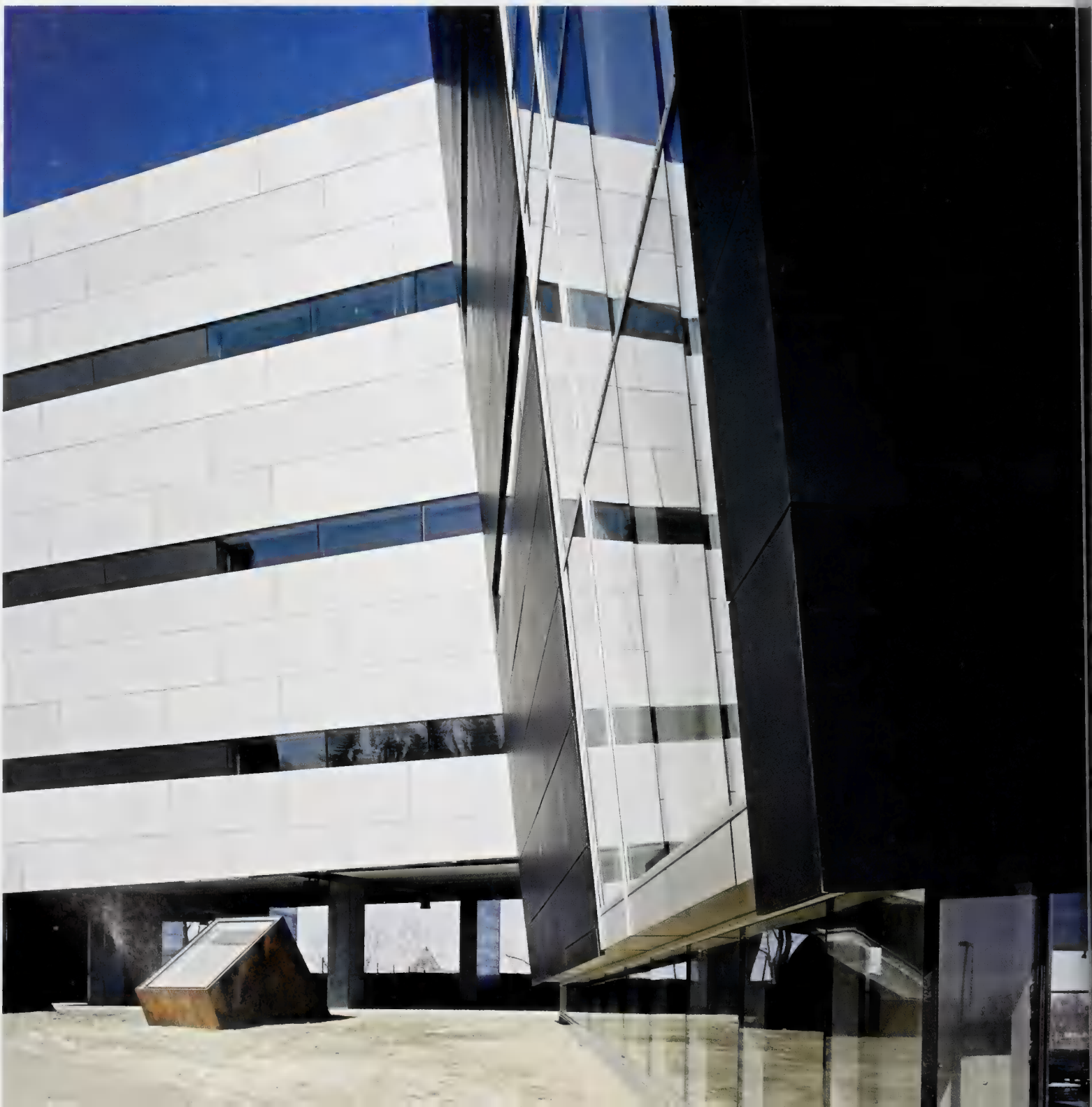


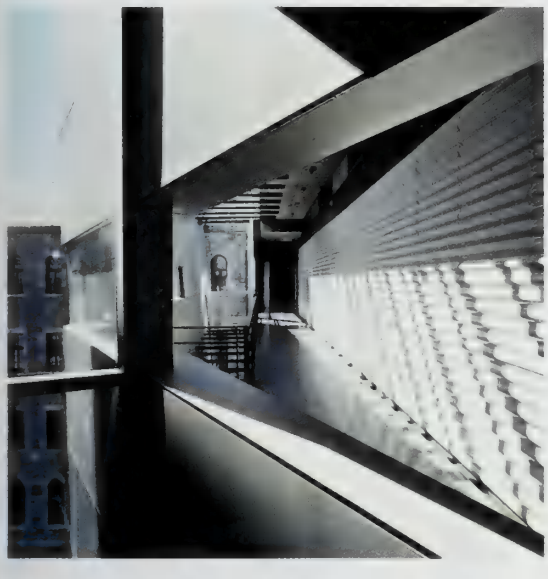
Project: *Collège Gérald-Godin, Sainte-Geneviève, Quebec, Canada*
Architects: *Saucier + Perrotte Architectes in association with Desnoyers Mercure et Associés—Gilles Saucier, design architect; André Perrotte, André J. Mercure, project architects; Yves Bouchard, Martin Bouchard, Robert D'Errico, Jean-François Lagacé, Jean-Olivier Nadeau, Marc-André Ploude, Pascale Tétrault, Yves Legris, Thanh Liem Nguyen, Luc Boivin, François Hogue, Ted Markis, Bernard Mercier, project team*
Engineers: *Génive-BPR, Saia, Deslauriers et Associés (structural); Soprin-ADS (mechanical-electrical)*
General contractor: *Socam*



SECTION B-B

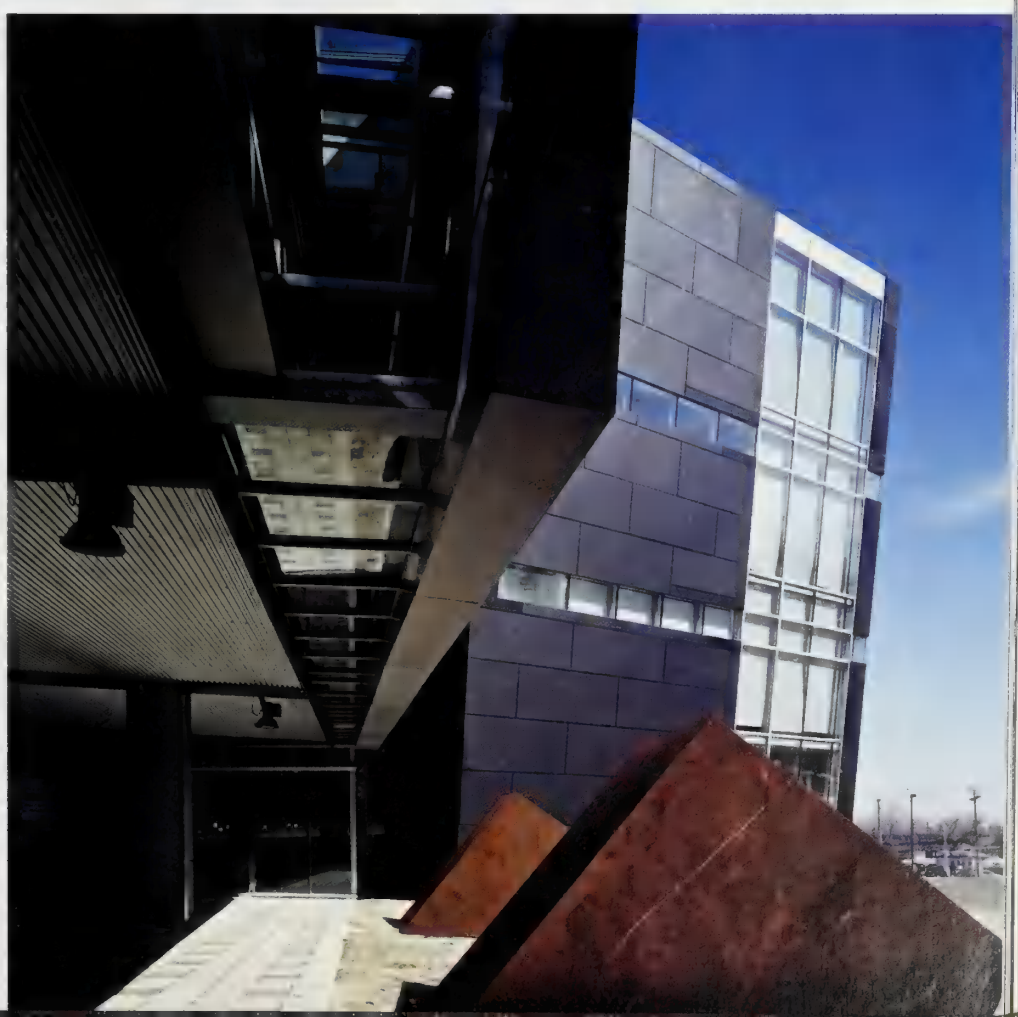
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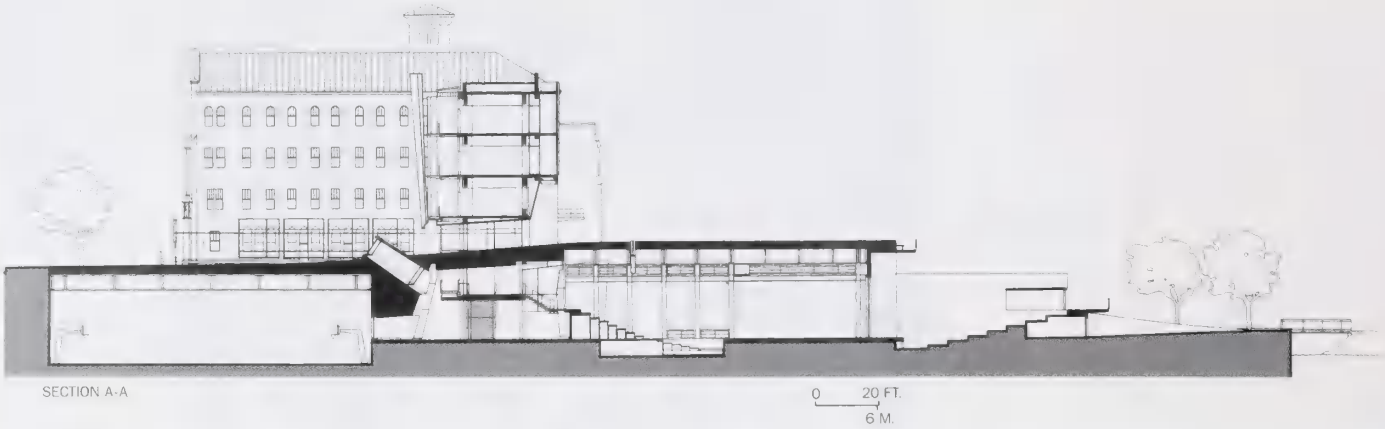






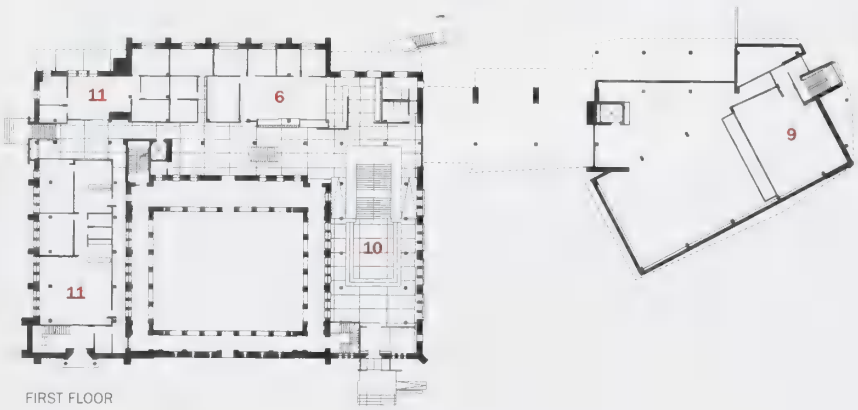
The glass and anodized-metal forms of the 74,000-square-foot addition (opposite) contain classrooms, laboratories, and offices above ground and a gym and 350-seat theater below. The angled walls of the new connector introduce a modern geometry to the college and allow daylight to penetrate from several directions (above left and right). Angled monitors in the forecourt (right) bring sunlight to the theater's lobby tucked below grade. As renovated, the old monastery has almost exactly the same square-footage (73,500) as the new building.



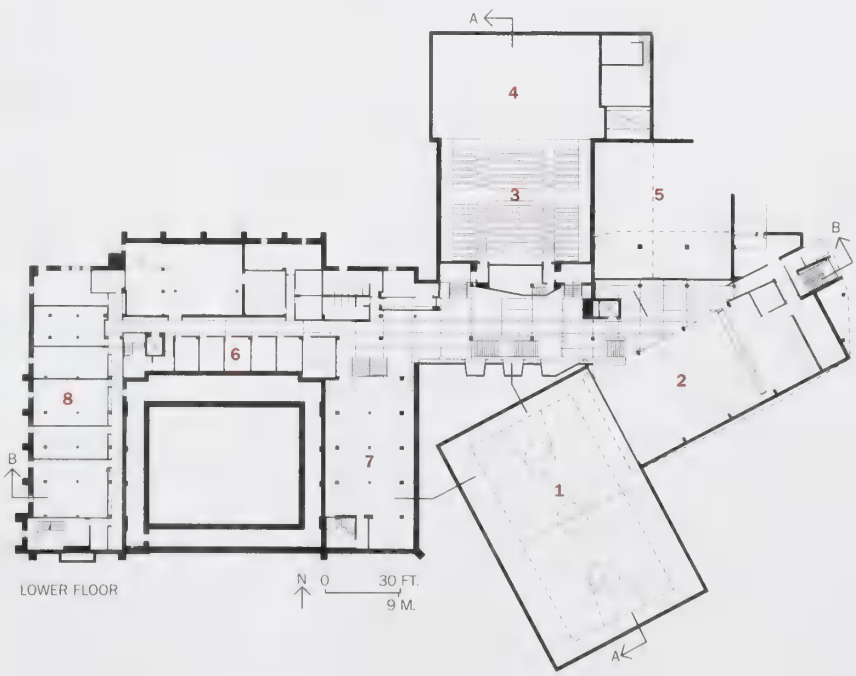




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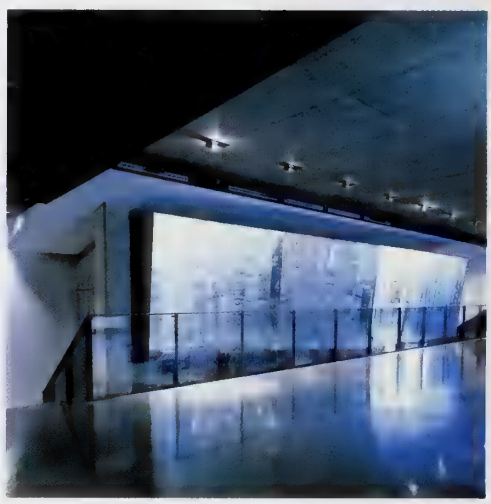
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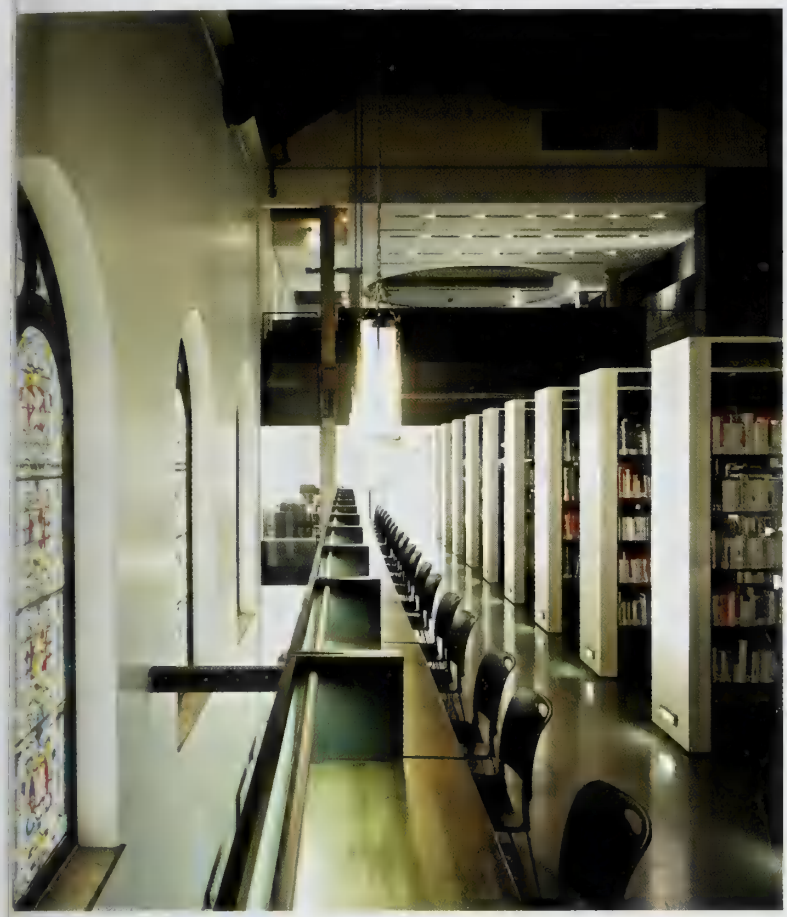
LOWER FLOOR

1. *Gymnasium (below)*
2. *Cafeteria*
3. *Theater*
4. *Stage*
5. *Terrace*
6. *Student services*
7. *Lockers*
8. *Storage*
9. *Mechanical*
10. *Agora*
11. *Administration*
12. *Classroom*
13. *Offices*
14. *Laboratories*
15. *Library*

The theater lobby (below) and laboratories (bottom) are in the addition, while a multistory library (opposite, left and right) has been inserted into the old structure. Existing stained-glass windows were retained.









and 350-seat auditorium are set underground at the joint between the old and the new. Clad in black anodized aluminum and cut with ribbon windows, the unexpected form of the new building is at once strange and satisfying, stable and dynamic—a powerful novelty that it is here to stay.

Gilles Saucier, the firm's design partner, is a modernist with a pure, sharp edge and a skill at using glass and metal both to distinguish and knit together old and new architecture. His Cinématèque Québécoise in downtown Montreal is an earlier example of such tendencies [RECORD, November 2000, page 142]. Wary of distractions like color, he is interested in the ways tilted walls and forms can bring new meanings to

THE UNEXPECTED FORM OF THE NEW BUILDING IS AT ONCE STRANGE AND SATISFYING, STABLE AND DYNAMIC.

an underlying architectural order. At Gérald-Godin, he establishes internal order with a horizontal datum: a dramatic multistory gallery that runs straight through the old building to the far end of the addition. Then he introduces a more dynamic geometry with the downward twist and tilt of his addition and a pair of slanted light monitors that drive daylight down to the lobby of the underground theater.

The tilting forms of the new building accentuate the orientation of the forecourt toward the sky and, more importantly, tie the entire composition to its climactic spatial event—the layered descent to the underground theater. For Saucier, the underground is more than a repository of found space or a way to protect views of the site. It is a hidden realm, protected by the earth, that links the entire scheme to the source of its legitimacy. For in Saucier's eyes, the college is a pairing of old and new blocks whose importance is not just the discourse between the two parts, but the strength drawn from the bedrock beneath them, symbolic of the underlying cultural continuity of French Canada.

In the course of the project, Saucier substantially reworked the interior of the monastery, cutting away floors for open stairs and moving corridors to the perimeter to bring in daylight. In making these changes, he was kind to the old building. He thickened the structure's thin stone-veneer walls in some places so they catch daylight as if they were the true masonry they pretend to be. He topped the gallery with a simple barrel vault as it runs through the monastery and painted it red to suggest a cut through architectural flesh. Converting the handsome volume of the old chapel into a cool white library, he left the rather garish stained glass to speak for itself and never pointed out that the great carved beams of the ceiling are actually concrete.

Emphasizing the old building's intentions, not its weaknesses, Saucier showed that he understands how the best additions work—by finding a composite form based on the existing component's underlying meaning, not its appearance. In the process, he made the most of the old building's ordinariness and used its aspect of continuity as a foil to show off a bold new expression of French-Canadian culture. ■

Sources

Precast concrete: *Shokbeton*
Curtain wall glass and skylights: *Vitrerie J.L.*
Curtain wall metal: *VicWest*
Glazing: *Industries Cover*
Built-up roofing: *Hydrotech*
Aluminum windows: *Alumico*
Acoustical ceilings and suspension grid: *Armstrong*
Cabinet work: *Nicolas Bonetto*
Laboratory furniture: *Bedcolab*
Slate tiles: *Cera-gres*
Interior ambient lighting: *Lightolier, Novus*

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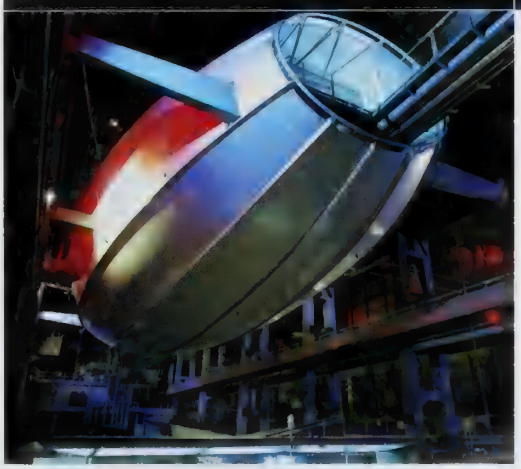


The air pavilion (this page and opposite, bottom) is shaped like a dirigible and clad in foil cushions. Steel walkways and bridges separate visitors from the shell of the existing plant. Most of the plant envelope was retained and painted black (opposite, top).

Wilkinson **Eyre** has transformed an eerie, cavernous steel-processing facility into **THE MAGNA PROJECT**, the United Kingdom's first science adventure center.







By Sara Hart

The British have been brilliant lately at transforming archaic industrial cavities into modern cultural institutions. Swiss architects Herzog and de Meuron recently transformed a defunct power station on the South Bank of the River Thames in London into the Tate Modern [RECORD, June 2000], the United Kingdom's repository of contemporary international art. In that well-publicized example, although the workings of the oil-fired plant had been removed, the architects preserved the feel of heavy industry by treading lightly in the interiors and keeping the brick envelope much as they found it. Now, with more high-tech drama and dazzling special effects, London-based architecture firm Wilkinson Eyre has taken another kind of obsolete behemoth—a steel-reprocessing plant in Templeborough, Rotherham, England—and turned it into the Magna Science Adventure Centre. Both Magna and the Tate are adaptive-reuse projects with intriguing preservation subplots in which memories lost when the buildings were shuttered are resurrected.

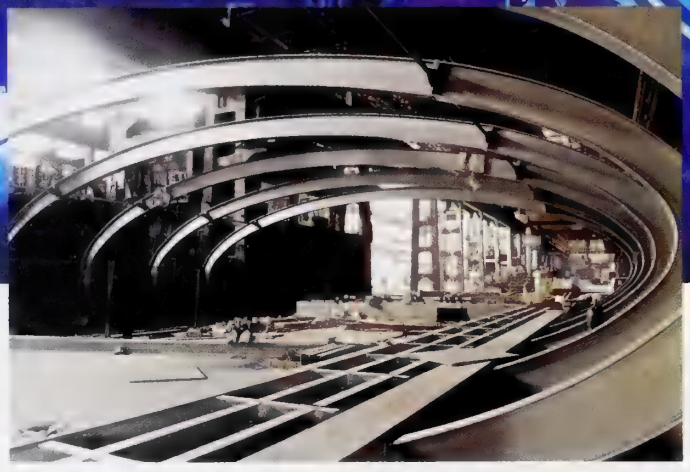
The Magna Trust appointed Wilkinson Eyre to undertake the $60 million project (funded in part by a Millennium Commission grant) in 1998. The Trust's program called for retaining most of the existing steel mill, and a tight budget limited the scope of the interior renovation. Only two ancillary bays were demolished, leaving two 1,200-foot-long and 115-foot-high bays to house four exhibition pavilions, which were organized around the Aristotelian elements of earth, air, fire, and water—the basic components of steelmaking. As project architect Marc Barron explains, "Raw material comes from the earth, and it is extracted with fire and air before being quenched with water."

With steelmaking as the governing conceit, the architect pursued a design strategy for the individual pavilions that dramatized with lighting and other special effects the characteristics of each natural element and its role in the fabrication process. These parts add up to a whole consisting of overlapping and interdependent experiences. "Our architecture is based on a functionalist approach, which can be traced back to the aims of early Modernism, but a project like Magna demands extra layers of complexity and interest," explains principal Chris Wilkinson. "Magna is neither a renovation nor a restoration, but a transformation. The raw industrial nature of the existing steelmaking building and its artifacts have been retained; new elements, in the form of the pavilions and walkways, can be clearly read as modern interventions, but also complete the overall composition."

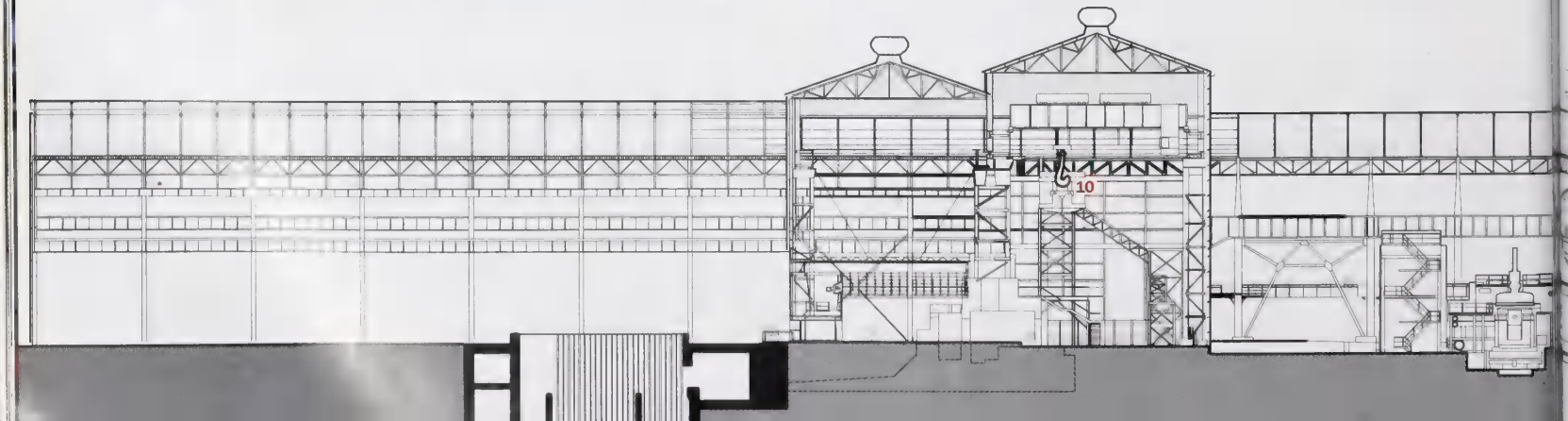
The form each intervention takes is the architect's interpretation of its essence. The earth pavilion is located below grade and is constructed of freestanding, irregularly shaped steel walls and a steel roof that recall the tectonic plates that comprise the earth's crust. Above the earth pavilion, the air pavilion has the character of a dirigible. Wrapped in three layers of ethyltetrafluoroethylene (ETFE) foil cushions clipped to aluminum extrusions, the pod appears to be suspended above the ground by a cable net tension structure. However, the walkway within it is mounted on four steel beams, which are bolted to the existing structure. The water pavilion takes the form of a spiraling ellipse. Although the structural ribs are parallel for practical reasons, the stainless-steel cladding follows the implied spiral of an extruded ellipse. Water runs throughout the cool, blue space. In contrast, flashes of red light emanate from the fire pavilion, rendered on the exterior as a plain, matte-black box. Inside all the pavilions, high-tech, interactive exhibitions explain how each element contributes to the steelmaking process.

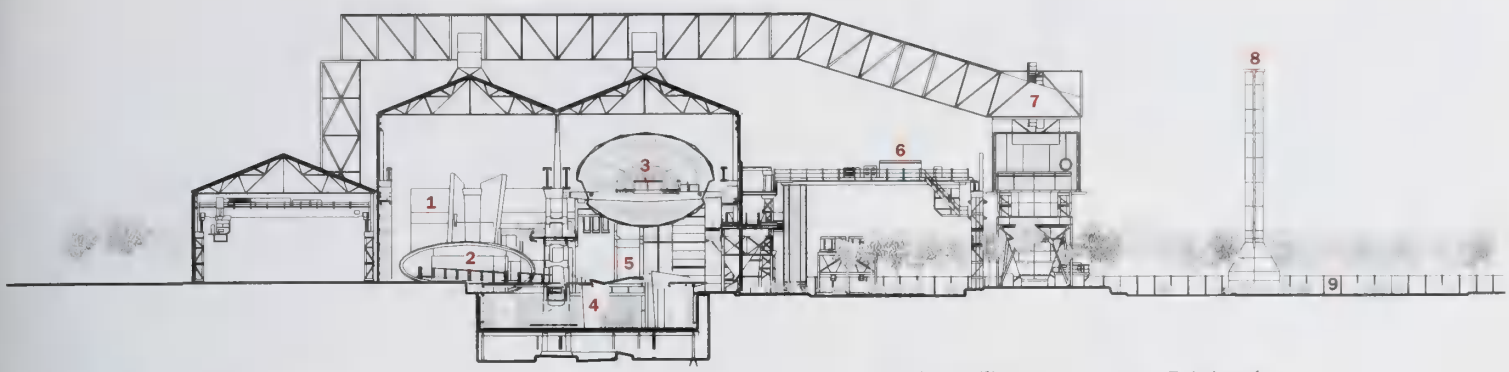
THE RAW INDUSTRIAL NATURE OF THE EXISTING STEELMAKING BUILDING AND ITS ARTIFACTS HAVE BEEN RETAINED.

Project: *The Magna Science Adventure Centre, Templeborough, Rotherham, England*
Architect: *Wilkinson Eyre Architects—Chris Wilkinson, director in charge; Marc Barron, project architect; Matt Appleton, John Coop, Graham Gilmour, Bosco Lam, James Parkin, Chris Poulton, Sebastian Ricard, John Smart, Simon Tonks, project team*
Engineers: *Mott MacDonald (structural); Buro Happold (services)*
Exhibition designer: *Event Communications Limited*



The shape of the water pavilion (above and inset) is based on two ellipses extruding into a spiral. Water runs throughout the space, which is illuminated with strong blue lighting.



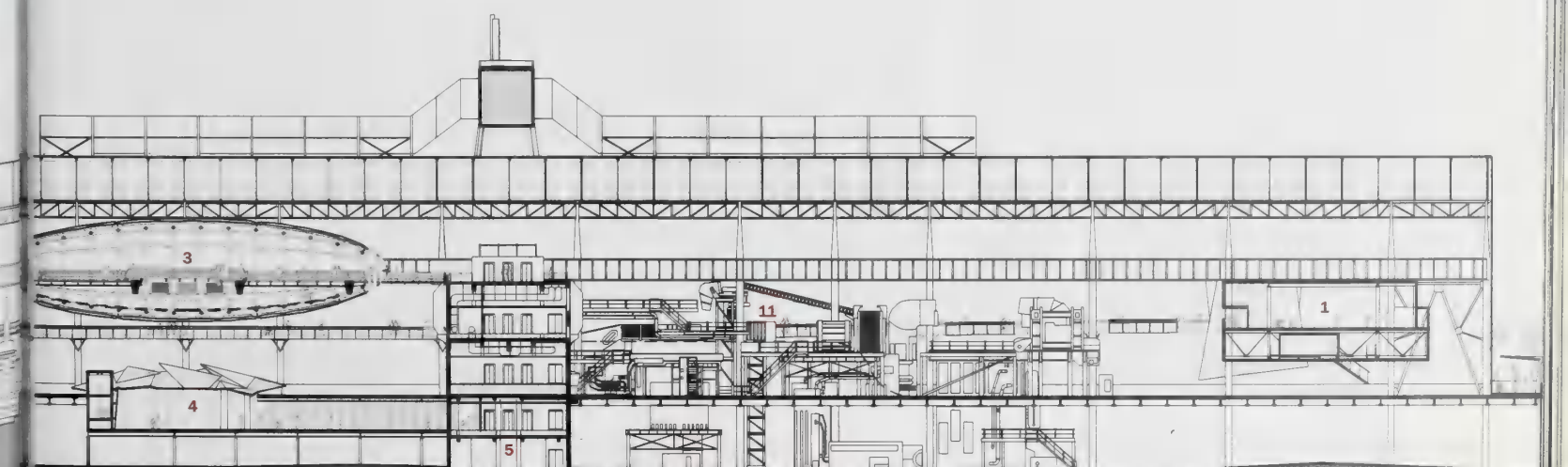


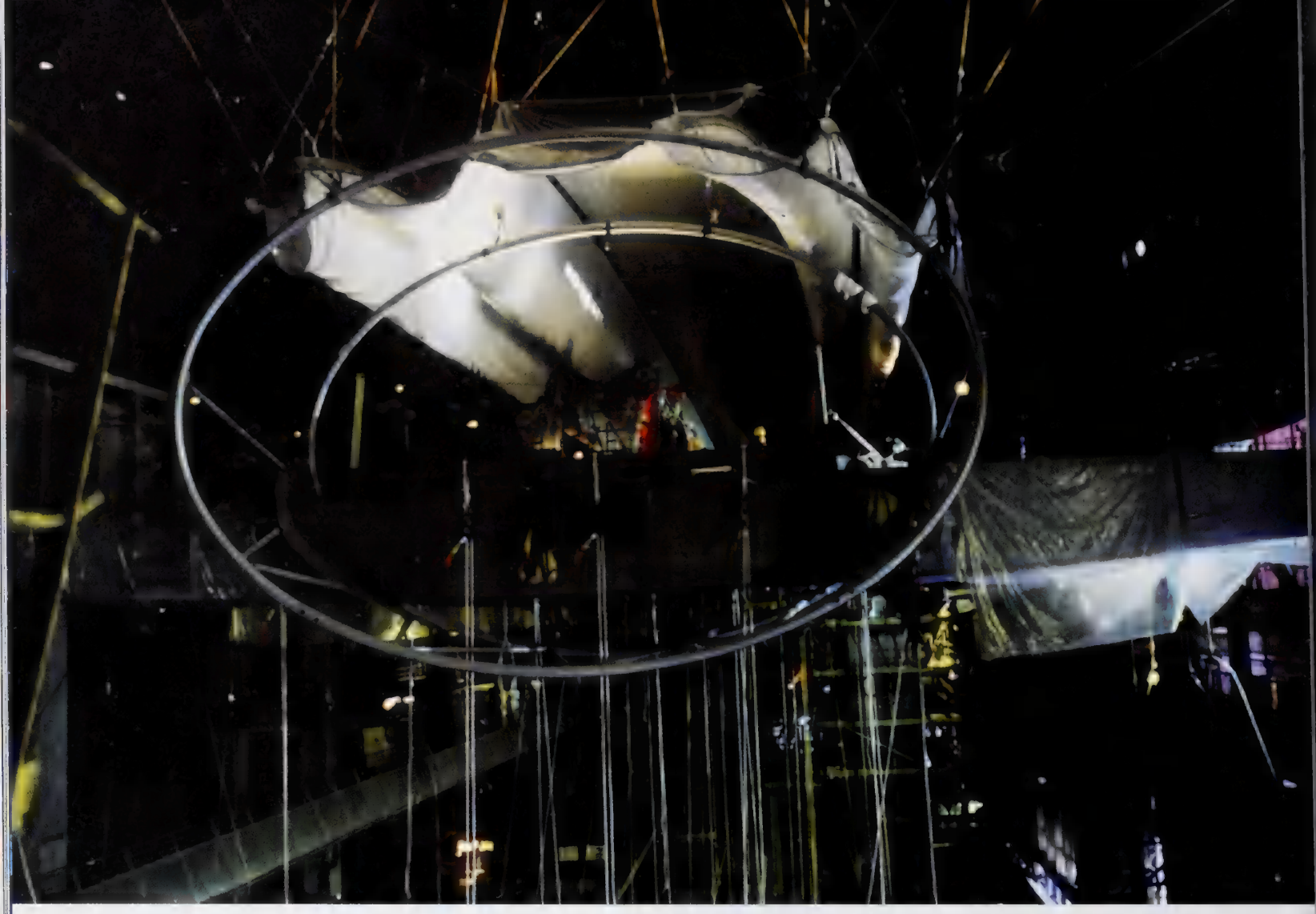
As the sections show, four pavilions dramatizing the steelmaking process are spaced throughout two cavernous bays of a defunct steel-processing plant.

1. *Fire pavilion*
2. *Water pavilion*
3. *Air pavilion*
4. *Earth pavilion*
5. *Transformer house*
6. *Crane*
7. *Existing plant*
8. *Existing chimney*
9. *Car park*
10. *Introduction*
11. *Restored arc furnace*









Elevated steel walkways and bridges take visitors from one to another.

The doubled-bay shell of the Great Hall where the exhibitions were inserted can be described in architectural terms as Gothic on the basis of its sheer volume. But the experience of it is more like a Gothic thriller, disguised by a deceptively innocuous exterior clad in metal painted black. The entrance is deceptive as well. The reception area, located in a bay perpendicular to the long bays of the Great Hall, is sunlit and modern. The adventure begins when visitors pass into a concrete chamber where they view a multimedia introduction called "The Human Experience." Then they move up via stairs or elevator onto bridges in the vast, dark, and mysterious interior of the Great Hall. The atmosphere is more that of science fiction than the genuine science documented in the exhibits. Rusted and charred relics from the plant's active days stand like skeletal remains of an extinct civilization in contrast to the new fabric of the sleek, brightly glowing pavilions. And then there's the awe-inspiring vastness of it all—seven stories high and twice the length of the Turbine Hall at the Tate Modern, or the length of four football fields.

THE EXPERIENCE IS LIKE A GOTHIC THRILLER, DISGUISED BY AN EXTERIOR CLAD IN METAL PAINTED BLACK.

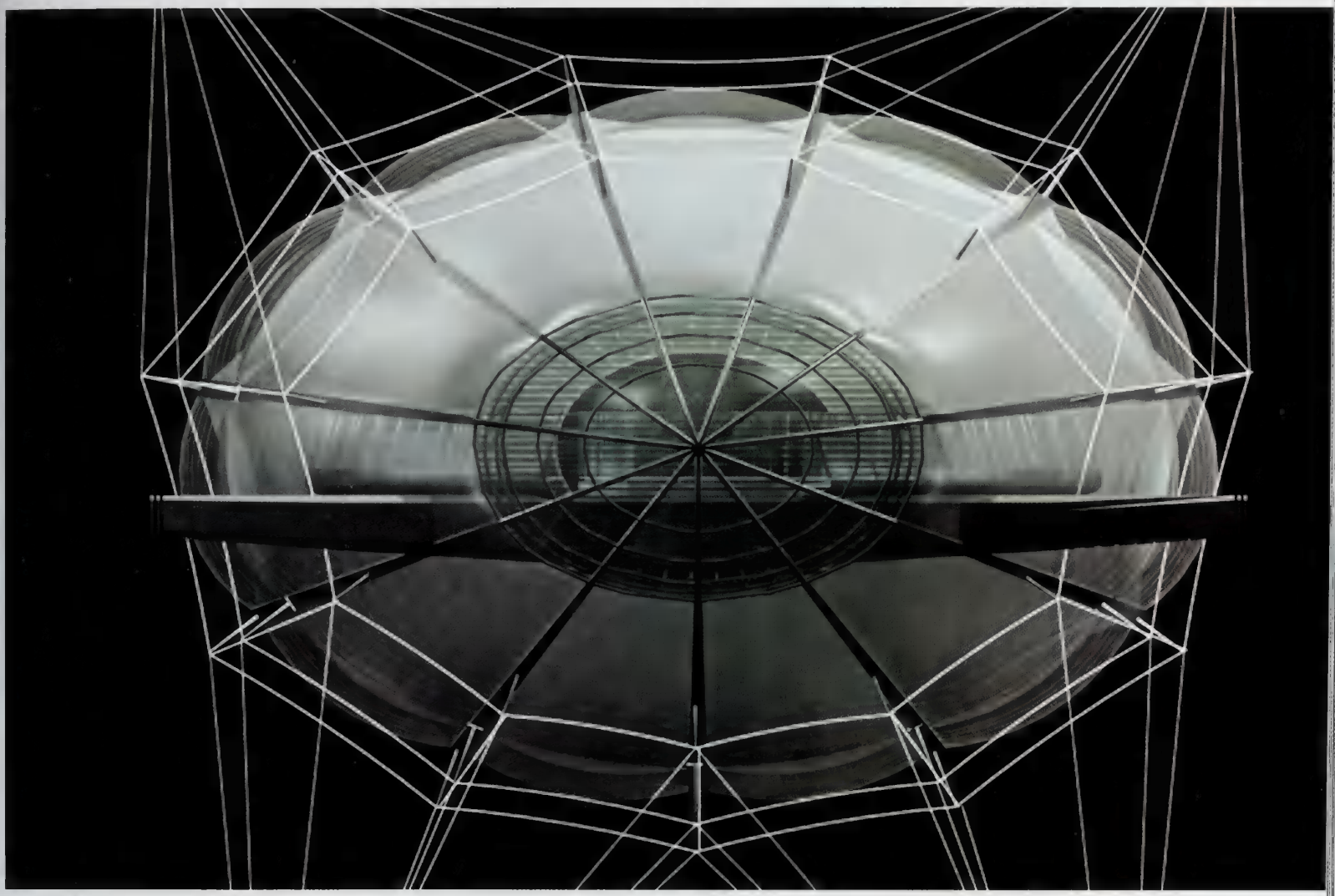
Magna opened last April to critical acclaim and an enthusiastic public. More than 225,000 visitors came in the first four months, three times more than predicted. On October 21, The Royal Institute of British Architects (RIBA) in association with the *Architects' Journal* awarded Wilkinson Eyre the prestigious RIBA Stirling Prize for the Magna Centre. The judges cited several reasons for awarding this project, including the architect's decision "to allow the existing building to speak for itself and to tell its own story." The building does indeed speak for itself, but it also provides context for the pavilions. In turn, the pavilions annotate the history of steel and the lives of those who toiled to produce it. By making the old and new work together to entertain and inform, Wilkinson Eyre has created an intellectual and experiential embrace between past and present that is truly authentic. ■

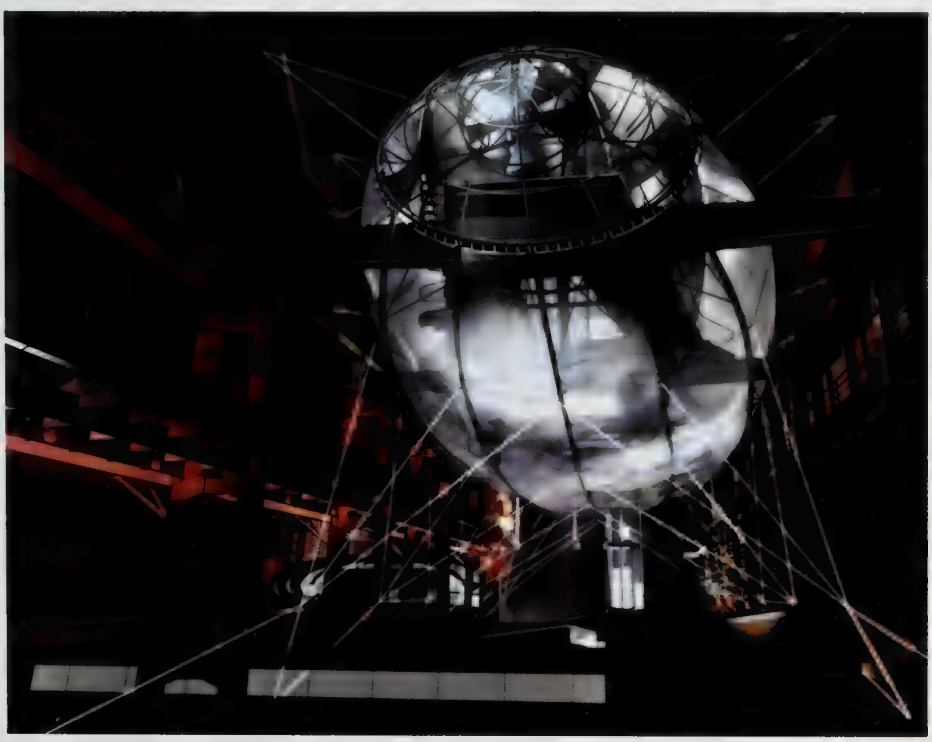
Sources

Lighting: *Speirs and Major (architectural); DHA (exhibition)*
Acoustical: *Richard McKenzie Partnership*
Landscape: *Hyland Edgar Driver (consultant); Brambledown Landscape Services*
Structural steelwork: *Billington Modern Structures*
Architectural metalwork: *Adey Steelwork*
Glazing: *Bennett Architectural Aluminum*

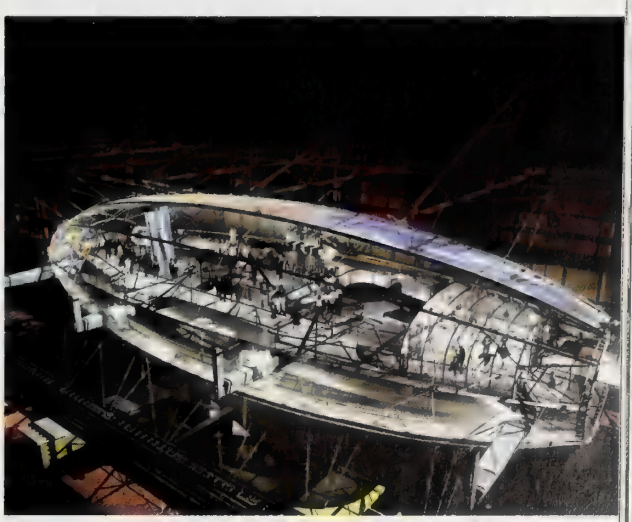
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PHOTOGRAPHY: © WILKINSON EYRE ARCHITECTS





The interior deck of the air pavilion is held up by steel beams (opposite) bolted to the existing structure. The ETFE fabric is attached to the building by a system of external cables (above and bottom left). Visitors enter through curtained opening (below) into the brightly lit pavilion.





The striking zinc-clad addition to the Montreal Archives is around the corner from the main entrance (opposite) of the 1911 limestone and brick building.

Dan Hanganu and Provencher Roy show how the new can enrich the old at the CENTRE D'ARCHIVES DE MONTRÉAL

By Paul Byard, FAIA

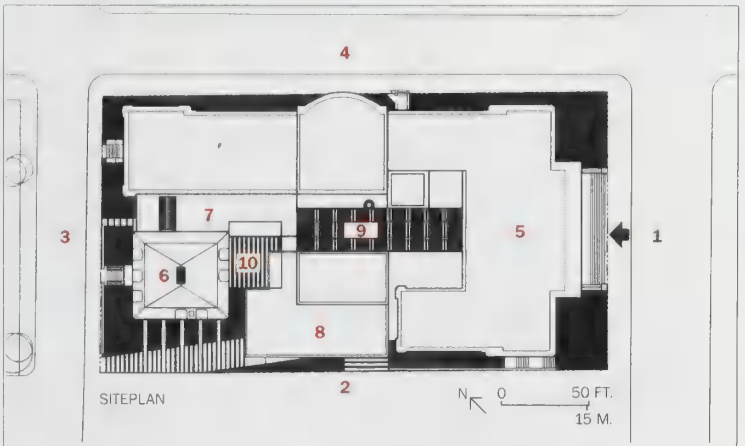
The past 30 years of popular anxiety about new architecture have been good and bad for old buildings. Shunning the new in our great love of preservation, we have made sure the comforts and virtues of old architecture remain part of our spiritual environment. At the same time, by sanctifying old architecture and making it untouchable, we have increasingly foreclosed the expressive potential that good, new architecture alone can provide.

This potential is realized by adventurous additions that reflect an understanding of what old buildings mean, not what they look like, and that with them make unique statements that address the demands of our contemporary human condition. These additions frankly acknowledge the authenticity of old buildings—that they are the "real thing," revealing human circumstances that have long since changed—and employ that authenticity to show both our difference and our continuity with that past. The additions themselves reflect the new variables we face today and use the old buildings to help us see what we have to confront. The new structures respect the old architecture by acknowledging its expressive strengths and interest. They invite old buildings to continue to contribute to the evolving challenge of architecture, to meet its obligation as an instrument of leadership.

The Centre d'Archives de Montréal is a recent paradigm of the architecture of additions at its best. The project started with a chunk of Beaux-Arts authoritarianism built in 1911 as the École des Hautes Études Commerciales (HEC), Montreal's premier business school. A J in plan, the thick-based old gray building was entered from the Parc Viger under a standard array of pilasters, statues, and trophies. Behind the door was a wide stair and a long leg containing many of the important original spaces. The Archives later acquired the handsome 1870 Maison Jodoin on the street behind, and in 1966 attached to it a concrete annex as plain and harsh as anything of its time. In 1998, it held a competition to complete the old building with an atrium made from its leftover light court.

Dan Hanganu and Provencher Roy won with a proposal for a strong, semidetached rectangular block, not a separate wing. Presenting its corner to the old light court, the addition makes an open-ended space





1. *Avenue Viger*
2. *Rue Labelle*
3. *Rue de la Gauchetière*
4. *Rue St.-Hubert*
5. *Former HEC*
6. *Maison Jodoin*
7. *1966 addition*
8. *New addition*
9. *Atrium*
10. *Exterior courtyard*

Project: *Centre d'Archives de Montréal*
Architect: *Dan Hanganu with Provencher Roy and Associates–Dan Hanganu, design architect; Michel Roy, project architect; Gilles Prud'homme, Thomas Schweitzer, Marie-Claude Lambert, Alex Touikan, design team; Normand Desjardins, Michel Amor, Réjean Comeau, Michael de Angelis, production.*
Engineer: *Les Consultants Géniplus (structural); Groupe Dupras Ledoux Associés (mechanical/electrical)*
Consultants: *Octave Acoustique (acoustics); Trizart (theatrical)*
Contractor: *Gespro SST*

Paul Byard, a principal of Platt Byard Dovell in New York, is the author of The Architecture of Additions: Design and Regulation *(W.W. Norton, 1998) and the director of the Historic Preservation Program at Columbia University's Graduate School of Architecture, Planning, Preservation.*





Hanganu brought out the dramatic height of the main reading room at the rear of the old École des Hautes Études Commerciales (HEC) building by painting the cast-iron columns white and adding a new spiral stair (opposite). Another vertical space, the central atrium, is inserted at the core of the complex (this page) to connect the various levels.

Folded aluminum checker-plate stairs take visitors up to the reading room, while steel freight elevators and catwalks provide circulation around the central atrium.





SECTION A-A

1. *Atrium*
2. *Exhibition*
3. *Auditorium*
4. *Reading room*
5. *Meeting room*
6. *Shipping/receiving*
7. *Archival storage*
8. *Office*
9. *Conservation workshops*
10. *Open to below*
11. *Exterior courtyard*



SIXTH FLOOR



THIRD FLOOR

N 0 20 FT. 6 M.

inside, not strictly an atrium, with a minor slot to the west, and a major one running up to the back wall of the old Maison Jodoin. In the major slot are the remains of the annex exposed as a concrete frame, the glass and mesh shaft of a new elevator, cut and textured metal surfaces, and a variety of bridges and galleries connecting all parts of the completed building. The entire, complex experience of the new space is organized around a straight path from the original monumental front door, up the original stair, and so on. New wide aluminum checker-plate steps take you up to the various repositories and research rooms that, as a seeker of truth—in the archival collections or its architecture—you have come to find.

And what you have sought reveals itself in the one truly distinguished architectural feature of the old building, the elegant reading room that remains the Archives' central public workplace. This long, four-story room is supported by slender pieces of iron, with an abundance of natural light and translucent glass floors that pique your curiosity with the shadows of feet and furniture above. Painted white, and animated with a new spiral stair, the iron, glass, and luminosity of the room together present a vocabulary for the expression of the architecture, which is uniform, fine and light, like old handwriting on a page.

The Romanian-born Dan Hanganu is an earthy Modernist who likes to build robust frames of exposed or metal-clad concrete then to erode them, stab into them, and push them out with big elements that generate strong, three-dimensional, abstract compositions. At the same time, he revels in the textures and surface detail of common contemporary building materials like exposed concrete, expanded metal, and, possibly most of all, various forms of painted particleboard.

Hanganu works at both scales, large and small, to bring out the meaning of the Archives, invading the iron frame of the reading room with a pillowed bulge enclosing the microfilm readers, or, in the new



A stair at the rear of the atrium leads up to the fifth level and the upper part of the reading room. Fragments of a brick wall add a contrasting texture to the perforated zinc panels shielding a service block. On the fourth level are computer terminals, sitting on an elliptical counter, for researchers to use.



From a catwalk in the atrium the visitor overlooks the main stair and sees the outlines of another stair behind the perforated zinc partition (left). The architects renovated the 120-seat auditorium in the old HEC building (below left). A space between the new addition and the Maison Jodoin is now a small exterior courtyard (below right). The vestibule of the reading room (opposite) is heralded by limestone caryatids.







court, exposing the frame of the old annex to show off treasures like the giant caryatids salvaged from a Montreal office building. At the same time, he picks up on the grain established in the reading room, covering walls and shafts with sheets of abstract metal, detailed at the scale of texts and words, including metal mesh illuminated with bright points of light that make it move like moiré.

At the end of the new axis of the court the old architecture becomes more explicitly part of the Archives: Here, the remarkable semi-dressed stone back wall of the Maison Jodoin reads like a historic document. The climax of this architectural interweaving of meanings, however, is a single triumph of structural abstraction, the long concrete back wall of part of the annex from which the waterproofing has been stripped to reveal an adhesive residue as colored, textured, and evocative as a Native American narrative scroll. Hanganu has placed a bench opposite the wall so that the scroll can be savored by visitors. But what the bench lets you savor is not just the interest of this one document. All around, the old building is engaged in a rich exposition of the expressive potential opened up for us by twentieth-century architecture. The combination of old and new makes clear where we were at the beginning of the century and, with the addition, how very far we have come. ■

Sources

Structure: *Axiome Construction & Orbi Metal Construction*
Masonry: *Maçonnerie Pro-Conseil*
Metal and glass curtain wall: *ADG*
Zinc: *Revêtement Vaudry*
Concrete: *Coffrage Dominic*
Roofing: *Couvertures Montréal-Nord (bituminous sheet membrane)*
Aluminum: *Kawneer (windows and curtain walls)*
Glass: *Viracon Solarscreen*
Skylights: *Kawneer, Verplex*

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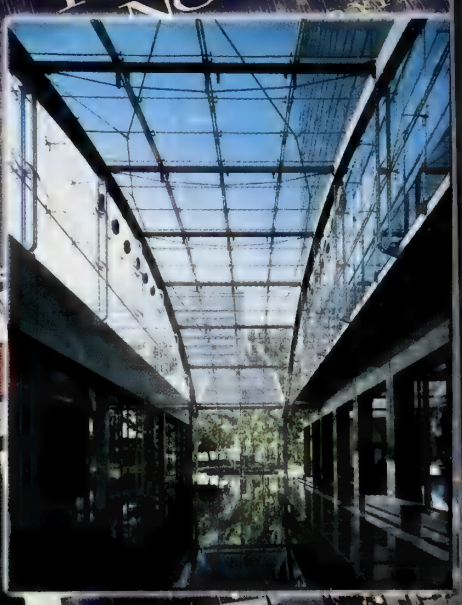
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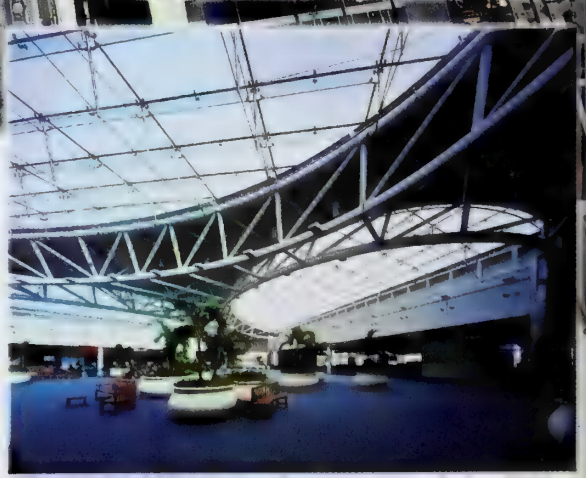
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Modern history

AS THE 20TH CENTURY BECOMES HISTORY, ITS BUILDINGS ATTRACT THE ATTENTION OF PRESERVATIONISTS AND RAISE QUESTIONS OF CONSERVATION, CHANGE, AND AUTHENTICITY.

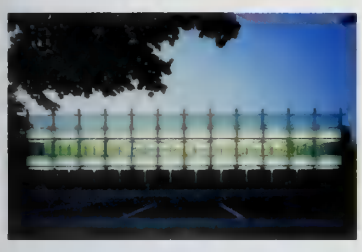
By Clifford A. Pearson

For a movement that began as a revolt against history, there's a certain irony in modernism's growing need of historic preservation. Like aging radicals whose long hair is now going gray and whose bones are getting brittle, many modern buildings are losing their looks and some are falling apart. Because they often broke dramatically from earlier buildings in terms of materials, technologies, and aesthetics, 20th-century buildings today pose special problems for those who want to conserve them, add to them, or reuse them.

"Focusing on modern buildings spins preservation in a new direction," states Theodore Prudon, AIA, a noted preservationist who is the president of the United States branch of DoCoMoMo (Documentation and Conservation of Buildings, Sites, and Neighborhoods of the Modern Movement). One problem is early obsolescence. Because functional requirements were never as generic as modernists hoped they would be, modern buildings are often less easily adapted to new uses. (See article on Eero Saarinen's TWA Terminal, page 63.) "In the past, there really were just four kinds of buildings—palaces, churches, houses, and warehouses," says Prudon. "Now every function has its own building type." As a result, some important 20th-century buildings are threatened with destruction or are being changed in ways unsympathetic to their original designs.

The original construction methods used on many modern buildings also have caused a host of problems, in part because architects often specified thin layers of lightweight materials that had not yet been tested by time. In addition to the many technical issues of repairing or replacing failed curtain walls and sagging cantilevers, some modern preservation projects raise philosophical questions of authenticity and craft. For example, no respectable preservationist would replace a Gothic church's stone walls with new ones. But reskinning Lever House with completely reconstructed curtain wall seems reasonable to most experts. The transparency of many modern buildings creates some thorny dilemmas, too, making the preservation of interiors—or at least the parts visible to the public from the street—important to retaining the integrity of the architecture.

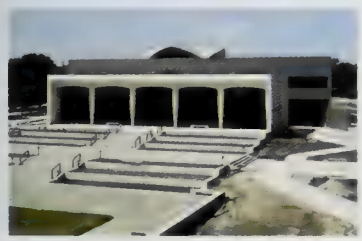
"We're just beginning to address the issues raised by 20th century buildings," says Prudon. ■



1.

Corning, New York

Bohlin Cywinski Jackson converts a 1966 office building into a glass library at Corning's campus of buildings by famous architects.



2.

Fort Worth, Texas

Philip Johnson tackles his favorite subject—Philip Johnson—with an addition to a museum he designed at the end of his Modernist period.



3.

Groningen, the Netherlands

A house designed by John Hejduk in 1973 is finally built in a different place for a different client. Is this historic preservation?



4.

Los Angeles, California

An actress and screenwriter recapture the original design of this 1950 John Lautner house while adjusting it to fit their own lifestyle.



5.

Dallas, Texas

A turn-of-the-century exhibition hall finds new life as a women's museum designed by Wendy Evans Joseph.

For 10 more renovation projects, go to Building Types Study at ***www.architecturalrecord.com***. The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

Rakow Research Library
Corning, New York

BOHLIN CYWINSKI JACKSON RENOVATES A TIRED 1960s OFFICE BOX, GIVING IT A NEW LIFE AS AN ARCHIVE AND LIBRARY.

By John E. Czarnecki, Assoc. AIA

Architect: *Bohlin Cywinski Jackson—Jon C. Jackson, AIA, principal-in-charge; Frank W. Grauman, AIA, principal-for-design; Michael Maiese, AIA, project manager; Steve Chaitow, project architect; Michael Gwin, Shelly Maiese, Doug Speckhard, project team*
Client: *Corning*
Consultants: *Atlantic Engineering Services (structural); Dewhurst Macfarlane and Partners (structural glazing); The Sear-Brown Group (mechanical, electrical, and plumbing); Garrison/Lull (preservation)*
Size: *43,500 gross square feet*
Cost: *$4,850,000*

Sources
Structural systems: *Delhi Steel Corporation*
Glass screen wall: *Clayton B. Obersheimer; Delhi Steel Corporation; Goldray Corporation; TriPyramid Structures*
Glazing glass: *Goldray Corporation; Vision Products; Viracon*
Acoustical ceilings: *Armstrong; Rulon*
Lighting: *Insight; Elliptipar; Lightron; Metalux; Bega*

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At first glance, a mundane, boxy 1960s building of brick and metal siding is not the most ideal setting for the world's preeminent resource on the history and technology of glass. Although the Corning company considered building a facility when the Corning Museum of Glass needed a new home for its library, the more attractive option was to renovate the banal warehouselike building that was once home to the company's housewares division. The former prosaic box with two floors of office cubicles, which would easily have been forgotten if demolished, has been transformed into the Juliette K. and Leonard S. Rakow Research Library.

Context

Bohlin Cywinski Jackson was initially hired to design a new library building on the Corning campus near the Corning Museum of Glass [OCTOBER 2001, page 112] by Smith-Miller + Hawkinson. The Corning company had recently sold its housewares division, and Bohlin Cywinski Jackson studied options to renovate the building for the library. The renovation proved to be the most feasible and cost-effective option because the 43,500-square-foot structure offered more space than needed for the library, so the renovated interior could be designed with shell space for expansion already built in. Although the building was reduced to its four exterior walls and interior columns, the adaptation was not easy. Preferably an archive should not have windows, but because this repository is all about glass, some level of glazing and transparency was needed. Also, the facility is built in an area that is prone to flooding (its ground floor lies in a floodplain)—certainly not a choice site for an archive.





Solution

In the original building, fenestration was minimal. The designers therefore decided to leave the windowless east wall and the minimally glazed north wall intact. An entrance and two-story-tall window was placed in the west wall. The most distinct exterior alteration was a glass brise-soleil affixed to the

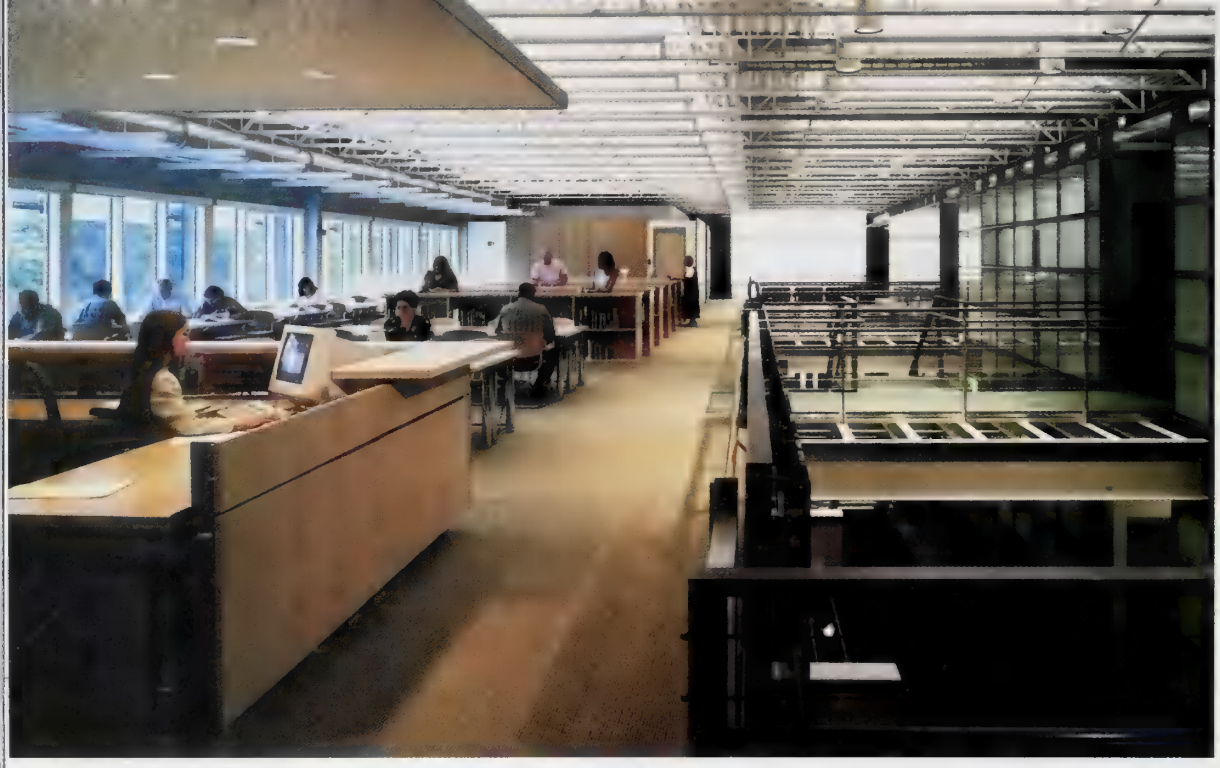
PHOTOGRAPHY: © STEVE CHAITOW (TOP); KARL-A-BRIDGE (BOTTOM)

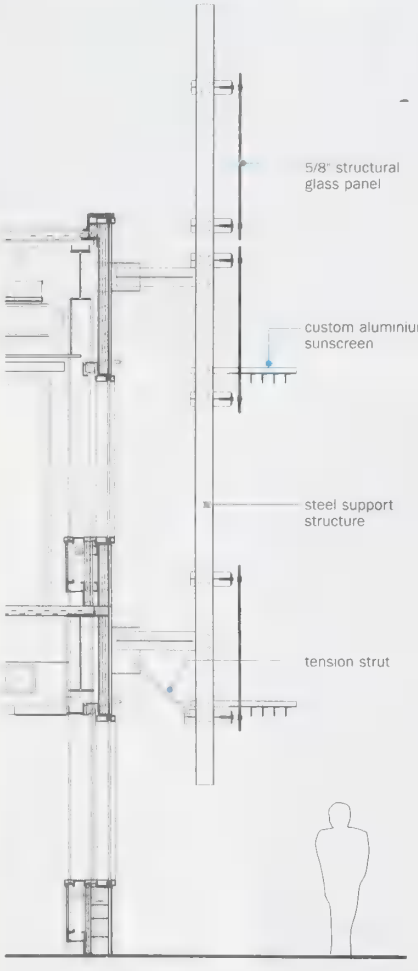




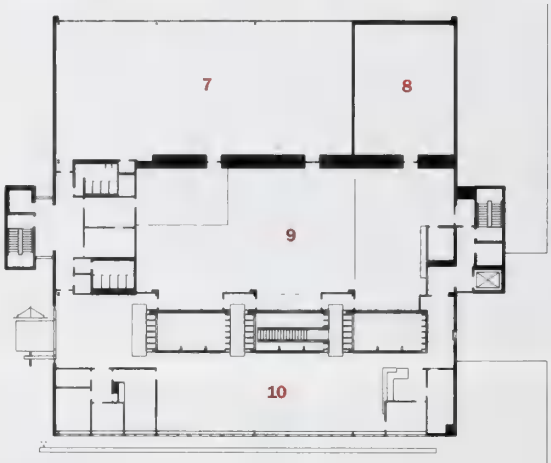


A new entrance (left and opposite, bottom) was inserted in the masonry west wall. The dramatic brise-soleil (above and far left) transformed the south wall with 6-by-12-foot glass panels to protect the second-floor reading room from both summer and winter sun.

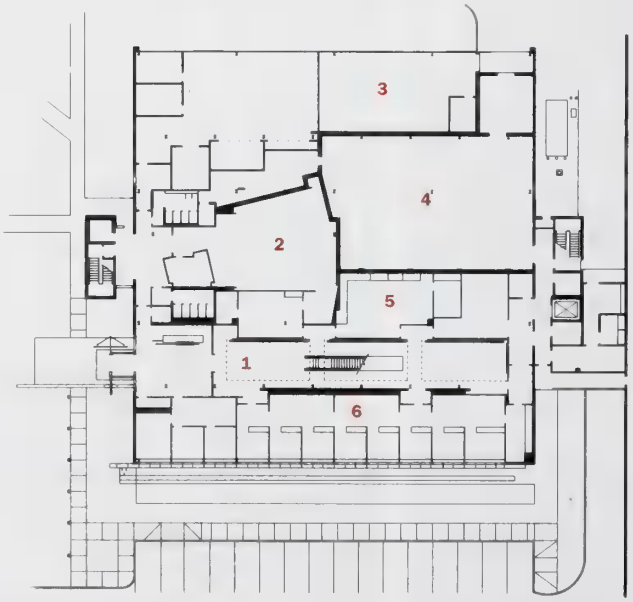




SOUTH WALL SECTION



SECOND FLOOR



FIRST FLOOR

1. *Reception*
2. *Seminar room*
3. *Future development*
4. *Mechanical*
5. *Conservation spaces*
6. *Staff offices*
7. *Future collection*
8. *Rare materials*
9. *Restricted collection*
10. *Reading room*

south wall. The brise-soleil, with 6-by-12-foot panels of ⅝-inch-thick tempered glass on steel masts about 5 feet from the existing facade, acts as an environmental sculpture that celebrates the full range of the material's properties: clarity, translucency, opacity, refraction, and structural strength. A ceramic frit is on the side of the brise-soleil glass that faces the building, with acid-etched lines on the front. Its top panels filter light from summer sun, and lower panels protect the reading room from winter sun angles.

Most of the renovation occurred on the interior. For heavier load requirements on the second floor, another row of columns was added. The extra floor space allowed the architects to open a portion of the second floor for a double-height atrium with a glass ornamental stair as the centerpiece. The ample space allows for the archive and valuable materials to be kept on the second floor, protected from the floodplain below. A seminar room, staff offices, and mechanical equipment, which is insurable in case of a flood, are on the ground floor.

For an optimal archive space, chemical agents must be minimized. Finishes were selected to avoid volatile compounds that give off odors, and a slate floor in the reception area is a natural cleft that does not require sealant.

Commentary

A prime example of transforming an indistinct building into a beautiful space, this renovation urges architects to ponder what can be done with newer structures that have outlived their original purpose. Frank Grauman, AIA, Bohlin Cywinski Jackson design principal for this renovation, said, "This solution was quite gratifying because it is grounded in how the world has changed. We have a whole generation of bland, joyless buildings out there and we really should, as a society, figure out what to do with them." ■

PHOTOGRAPHY: © MATT WARGO (TWO); PAUL



The staircase leads from the reception area up to the public reading room. The second-floor archive is behind the glass wall.

Amon Carter Museum
Fort Worth, Texas

2 **PHILIP JOHNSON/ALAN RITCHIE ARCHITECTS EXPAND THE MUSEUM THAT JOHNSON ORIGINALLY BUILT IN 1961 FOR A COLLECTION OF COWBOY ART.**

By David Dillon

Architect: *Philip Johnson/Alan Ritchie Architects*
Architect of record: *Carter & Burgess*
Client: *Amon Carter Museum*
Engineers: *Patum Engineering (structural); Blum Consulting Engineers (mechanical)*
Consultants: *Carter & Burgess (landscape); Gordon Anson (lighting)*
Construction manager: *Linbeck*

Size: *107,000 gross square feet*
Cost: *$39 million*

Sources
Masonry: *Narjan Brown granite, Texas Shellstone (Lucia Marble & Stone)*
Glazing system: *Bronze (Oak Cliff Mirror & Glass)*
Doors: *Bronze (Offenhauser Co.)*
Glass: *Insulating laminated (GlasPro)*

www
For more preservation projects and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

Context
The Amon Carter Museum in Fort Worth opened in 1961 as a small shellstone building with thin tapering arches and a two-story loggia filled with the eponymous donor's collection of cowboy art by Frederick Remington and Charles Russell. Philip Johnson designed the museum at the end of his self-proclaimed Modernist period, when he had grown tired of Mies and the Bauhaus and was casting about for a looser, more expressive "ism."

But the institution soon outgrew the building Johnson had designed for Carter's 400-piece collection. Within a few years, its mission had expanded to Western American art more broadly, and then to American art in general, with special emphasis on photography. Suddenly Johnson's intimate little jewel box, his romantic break with Mies, had become an overstuffed suitcase. His modest additions of 1964 and 1977—including offices, a bookstore, a small garden, a 100-seat theater, and an expanded library—barely dented the space problem.

Solutions
With its recent $38 million addition, the Carter now resembles what Robert Venturi termed a "decorated shed." The original building serves as a kind of porch for the structure the architect calls his "big warehouse." "The new building had to bow in some ways to the past,"



The original building, designed for a small collection, is clad in shellstone.

Johnson explains, "I couldn't do my wiggly thing there, so I decided to leave the front part as it is and put everything else in back."

The latest addition is triangular in plan and three stories high. Faced in brown Arabian granite, it drives into a slope at the rear of the site. Within its 86,000 square feet are education, conservation, office, meeting, and storage facilities, and galleries for the museum's 237,000 paintings, drawings, sculptures, and photographs. A two-story atrium, with granite walls and a beanie-shaped skylight, links new and old.

"Philip did a plan for us in 1993, then realized it was totally inadequate and started over," says Amon Carter director Rick Stewart. "He did not want to put an addition onto an addition, or overwhelm the original facade, so he had to rethink it all."

Johnson was adamant about not tampering with the original building, a personal favorite that marked a turning point in his career. It was conceived as a memorial to Amon Carter, and Johnson often referred to it fondly as a tomb or mausoleum, but said he never imagined it as more than a memorial of mainly local interest.

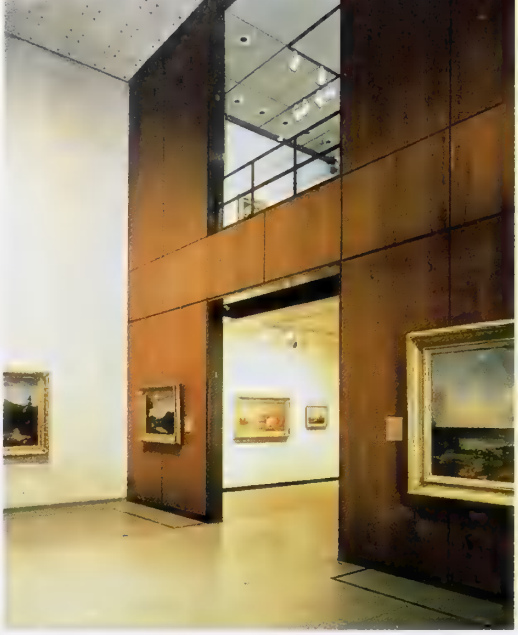
But to accommodate the current collection, he decided the best solution would be to isolate the 1961 building, the authentic piece, rededicate its first-floor galleries to the works of Remington and Russell, and then create a neutral backdrop to house everything else. Accordingly, he demolished his earlier additions and meticulously restored the teak walls and shell-

PHOTOGRAPHY © EZRA STOLLER/ESTO





The recent 86,000-square-foot addition with an atrium (this page) is clad in brown Arabian granite, intended as a neutral backdrop to the original 1961 structure.



1. *Museum shop*
2. *Reading room*
3. *Two-story atrium*
4. *Auditorium*
5. *Gallery*
6. *Sculpture gallery*
7. *Kitchen/storage*
8. *Office*
9. *Stacks*
10. *Archives*
11. *Study*
12. *Conference/seminar*
13. *Slide library*
14. *Microfilm*









Shellstone lines the skylit atrium (this page). While daylight can enter some of the exhibition galleries, most are only illuminated electrically (opposite). The museum staff vetoed Johnson's proposal for a series of skylights, due to concerns about damaging rays.

stone ceilings in the original galleries. The architect also refurbished the formal entry plaza (even replacing a mesquite tree that had died) with its grand axial view of downtown Fort Worth. Behind this tableau rises the new wing, like a giant scrim for an outdoor pageant.

Commentary

The addition solved many of the museum's functional problems, particularly the lack of exhibition space for its extraordinary collection of American photography. The images by Edward Curtis, Berenice Abbott, and many others now have a permanent home and a public life.

But if the addition solved practical problems, it also created a few aesthetic ones. The dark Arabian granite contrasts sharply with the creamy Texas shellstone, like a jeweler's cloth behind an ornate necklace. Its subtle shading and precise gridding modulate the scale of the facade, but without eliminating its stolid, standoffish quality. The north wall on Camp Bowie Boulevard seems particularly bland and cheerless.

More troubling is the paucity of natural light in the galleries. Johnson initially proposed a series of skylights for this addition, but the staff balked because the permanent collection has so much work on paper. "We didn't want galleries that played with Texas light," says Stewart. What they got instead was an atrium (two were proposed) and one large window in the temporary-exhibition gallery. Most of the other galleries are introverted and hermetic. Staff conservation concerns notwithstanding, daylight can enter a museum in many ways without risking the collection. One of the best examples is just down the street at Louis Kahn's Kimbell Art Museum.

That said, the Carter curators clearly feel they got the building they needed and wanted. "The main drive behind the expansion was to put as much of our collection before the public as possible," says Stewart, "and I think we've done that. We chose public space over support space every time." ■

Wall House
Groningen, the Netherlands

3

JOHN HEJDUK'S FAMOUS HOUSE PROJECT, DESIGNED IN 1973 AND RECONSTITUTED FROM DRAWINGS, REPRESENTS A REVOLUTIONARY APPROACH TO THE IDEA OF AUTHENTICITY.

By Alexander Gorlin, AIA

Project: *The Wall House 2, Groningen, the Netherlands*
Architect: *John Hejduk, New York; Thomas Müller/van Reimann Architects, Berlin—Thomas Müller, principal; Otonomo Architects, Groningen—Derk Flikkema, project architect; Bart de Groot, Ramon Zuidersma, team.*
Client: *Niek Verdonk, director of city planning, and Olof van de Wal, of Platform Gras, both of Groningen*
Consultants: *Ingenieursbureau Dÿkhuis, b.v.*
Contractor: *Wilma, b.v.*
Size: *2,500 square feet*
Completion date: *October 2001 (finishes to be provided by owner)*

Sources
Wood: *Harryvan, b.v.*
Structural steel: *H. Meyer Staalbauw*
Glass: *Nico Kool, b.v.*

www
For more renovation projects and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

It is virtually without precedent that a house is constructed posthumously exactly as intended by the architect, 28 years after it was designed, on a different continent, and for a different client. The architect, John Hejduk, the longtime dean of the Irwin S. Chanin School of Architecture at The Cooper Union in New York, unfortunately died in July 2000, just before construction began on his seminal project, the Wall House 2.

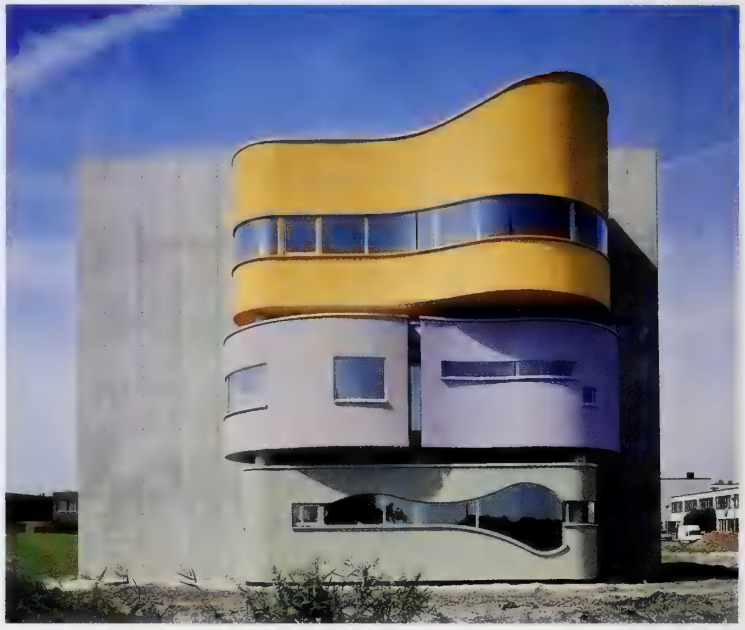
Hejduk had originally designed the Wall House 2 in 1973 (the first was done in 1968) for Ed Bye, a landscape architect and fellow faculty member. Plans for building the modestly sized primary residence, on a forested site in Ridgefeld, Connecticut, were abandoned due to concerns over the cost of building.

But now it has been realized in Groningen, the Netherlands, as a result of a convoluted process that was brought to successful conclusion by the efforts of Niek Verdonk, Groningen's director of city planning, and Olof van de Wal, the head of Platform Gras, a city-sponsored architectural group.

Context

For 11 years Verdonk and Van de Wal remained committed to constructing Hejduk's famous project, an extraordinary intersection of

Alexander Gorlin, AIA, a New York architect, studied with John Hejduk and taught at Cooper Union from 1998–2000.

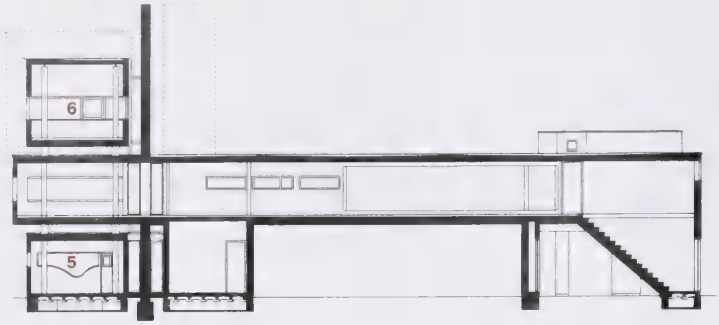




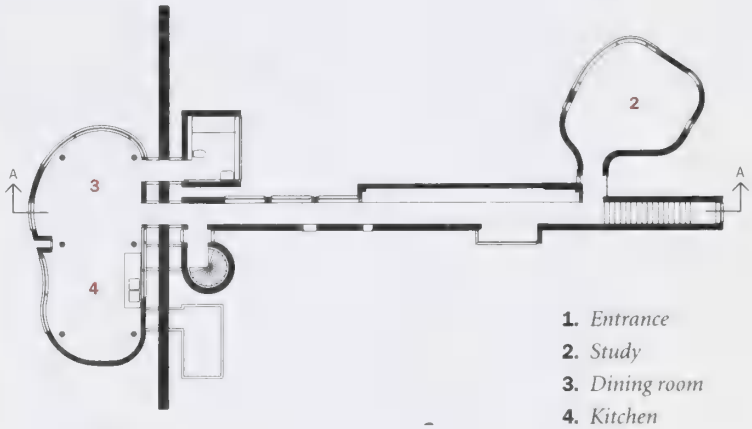
PHOTOGRAPHY: © CHRISTIAN RICHTERS



The concrete wall, 53 feet high, 75 feet long, and 18 inches deep, is painted gray. The room volumes, painted in saturated, pastel tones recalling Piero della Francesca, stand out in bold relief.

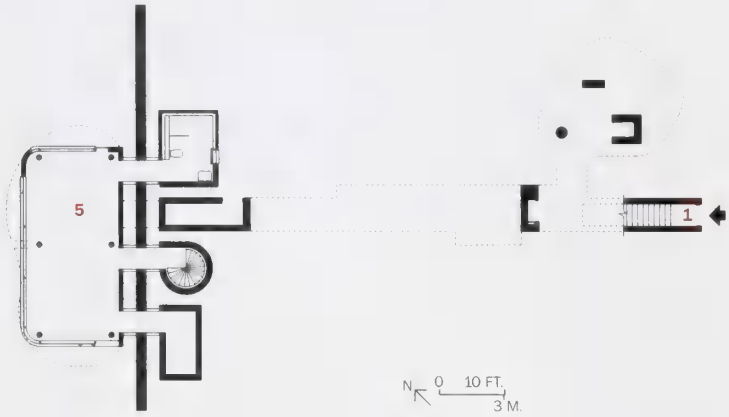


SECTION A-A



SECOND FLOOR

1. *Entrance*
2. *Study*
3. *Dining room*
4. *Kitchen*
5. *Master bedroom*
6. *Living room*



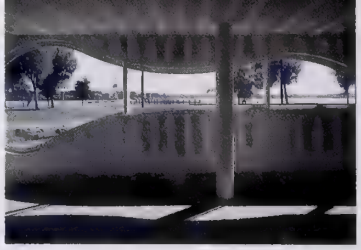
GROUND FLOOR

Cubist painting, Surrealist sculpture, and architecture, even as one potential client after another fell through. Then early this year, a development company, Wilma, b.v., decided to build the house at its own expense, turning it into a speculative venture. Due to building codes and construction techniques—which required, for example, leaving space between the wall and rooms for hand plastering—the house was enlarged proportionally 20 percent from its original size, to 2,500 square feet. A client has now purchased the house at a cost of $800,000 and will be moving into it in January.

Process

Executing the design for a different time, place, culture, and client seems an impossible goal in terms of creating an authentic work of architecture. Nevertheless, the house in Groningen captures the intensity and flavor of Hejduk's model and drawings, effectively challenging conventional notions about authenticity.

The Wall House employs the vocabulary of Le Corbusier to explore the relationship between inside and outside in a more extreme way than did the Swiss-French master. You enter by going up a flight of stairs to the piano nobile, where you find various biomorphically shaped spaces containing the study and, at the end of a long corridor, the kitchen and dining room. Above is the living room, below is the bedroom. These distended volumes, which seem to be filled with air (or gas) and



pressed tensely against the wall, appear cantilevered. However, they are supported by a grid of columns, emphasizing the wall as a rhetorical, not a structural element.

The original drawings had been suspended in the design development stage, but Thomas Müller of Berlin, a former student of Hejduk's, redrew the plans with Derk Flikkema of Otonomo Architects in Groningen, with Hejduk reviewing the drawings in each phase up until his death. As completed, the Wall House is a structure of reinforced concrete for the wall and columns, with a steel-framed corridor, wood stud walls, and a stucco exterior.

Commentary

Conceptually the project follows the idea that animates a Greek temple, where once the type was perfected, it could be adapted to different sites, each one as authentic an interpretation as the next.

Now that it is constructed, the Wall House, a project of mythical status, has taken on a new life, especially in a country that values architecture and design. In its new home on the polder, where the mists and fog of the lake and North Sea combine, it rises like an apparition, evocative and mysterious. It is living proof that an original architectural idea can survive not only the abandonment of the client, but the death of the architect, as well. ■

The concrete wall of the house was the largest pour in the history of Holland, even including construction of the dykes—the archetypal Dutch wall.







The interior will be finished by the owner, and some exterior pipes (a periscope and a chimney) are to be added then.

Harvey House
Los Angeles, California

4

JOHN LAUTNER'S 1950 HOLLYWOOD HILLS RESIDENCE FOR AN ALUMINUM MAGNATE HAS ITS FIRST SHOT AT AUTHENTICITY AFTER RESTORATION.

By Alan Hess

Architect: *Lautner Associates—Helena Arahuete, principal*
Client: *Kelly Lynch and Mitch Glazer*
Consultants: *John de La Veaux (original builder), restoration consultant; George Haney & Son, mechanical contractors (mechanical); Good Earth Enterprises (landscape); Coastline Pools (swimming pool restoration); Helena Arahuete; Gilbertson Electrical (lighting)*
Restoration date: *1998–99*
Contractors: *Robin Poirier and Associates (general contractor)*

Sources
Marble, slate, and terrazzo: *Brennan Masonry and Robin Poirier and Associates*
Aluminum sliding doors: *Robin Poirier and Associates*
Windows: *D.E.C. Fabricators*
Locksets: *Schlage*
Hinges: *Soss*
Cork flooring: *J.M. Norden Co.*
Wood flooring: *Mike Pillar & Son*
Custom furnishings, cabinetry, wood paneling: *Graham-Lee Associates, Bryan Miller, and Robin Poirier and Associates*

www
For more preservation projects and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

John Lautner's houses present a peculiar philosophical dilemma to restorers. To Lautner, architecture was an ideal independent of time, not part of a continuum of evolving traditions or styles. Making a house "authentic" meant advancing new forms with the latest materials and techniques available—not relying on what came before. The job today was to restore authenticity to something intended to be authentic when new.

Actress Kelly Lynch and screenwriter Mitch Glazer faced that conundrum when they found Lautner's 1950 Leo Harvey House in Hollywood for sale in 1998. They decided to treat it as a piece of living architecture, with certain changes reflecting their needs and tastes as its current owners. And yet they accepted that the house's historic character reflects the vision of an important designer overlaid with the patina of previous owners and passing time.

Context

Designed in 1949 for aluminum magnate Leo Harvey, with a magnificent site encompassing unfettered views from downtown Los Angeles to Santa Monica and the Pacific Ocean, the house was intended for a master of the universe. Harvey clearly felt at home there. But by 1998, it was a modern ruin marred by remodeling,

Alan Hess is the architecture critic for the San Jose Mercury News.



PHOTO © ALAN WEINTRAUB

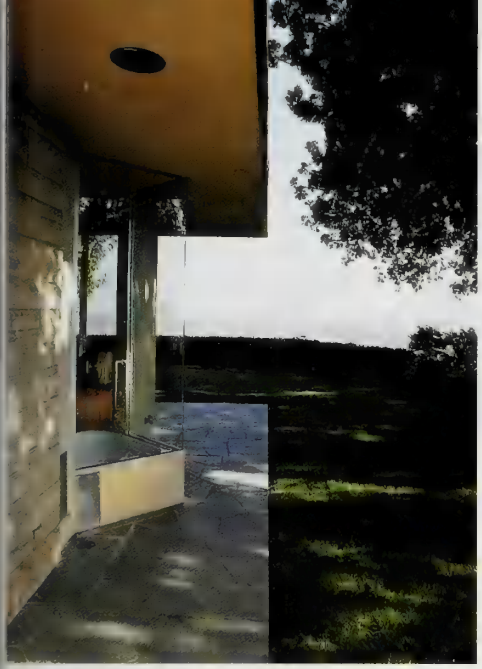
and its exotic satinwood and padauk walls had been stained by water.

When L.A. was rediscovering its midcentury modern heritage in the 1990s, many found Lautner's houses still difficult to embrace. They were not like those by Pierre Koenig, Richard Neutra, or even Rudolf Schindler. Elegant minimalism was never Lautner's interest. In combatively creative designs like the Chemosphere House, designed in 1960 and today an L.A. icon, he had staked out a distinct but uncontestable branch of native Southern California Modernism: organic, dynamic, spatially opulent, geometrically complex, technically exuberant.

These unmistakable qualities were apparent to Lynch and Glazer in the Harvey House, even through the ruins. To execute the unconventional restoration, they selected three people who had worked closely with Lautner: Helena Arahuete, an architect who had been with the Lautner office for 25 years; Robin Poirier, a contractor who had worked with Lautner before his death in 1994, and John de La Veaux, the original contractor for the Harvey House.

Process

The discussions between clients, architect, and contractor, each of whom revered Lautner, were passion-





One decision made during the restoration of the house was to replace its hot-mopped asphalt roof with standing-seam copper (opposite). The hefty door and window frames, originally milled out of solid aluminum bars, were also restored (this page).





Considering that aluminum magnate Leo Harvey furnished this John Lautner–designed house with wall tapestries and French antiques, its authentic nature was obscured even when the house was new.



ate. Although the building would be restored to its original form, there would be specific exceptions intended to reflect Lynch and Glazer's tastes (rather than the Harveys'), as well as to solve watersealing failures in the original design, and to rethink elements that were too costly or impractical. Colors—most likely the Harveys' selections—were muted. The master bathroom's small slit windows were replaced with a full window, copied in material and detail from another bathroom, to open up breathtaking views of Los Angeles.

To keep the character of 1940s construction techniques, the owners elected to restore the heftier aluminum door and window frames. Damaged wood and marble were painstakingly restored or seamlessly replaced. Another decision involved retaining and restoring a large entry and art gallery addition designed for Harvey by Lautner in 1959 to enclose the outdoor forecourt. It featured a remarkable trellis of concentric circles radiating from a trunklike column clad in vertical ashlar pink Arizona stone.

Another major change from the 1950 house came with Poirier's recommendation to clad the gray downturned eaves of the compound curved roof with copper. The original pumice and cement roofing had failed immediately (Lautner often pushed new materials to their limits) and was covered with a traditional (if unsightly) hot-mopped asphalt roof.

Commentary

The result of the work is the recovery of a missing piece of the puzzle of Lautner's career. It has been suggested that he was disappointed with his first large-scale, lavishly budgeted project. When the Harveys filled the house with French antiques and covered the wood walls with tapestries, Lautner must have felt the house slipping away from him. He only allowed construction and model photos of it to be published.

Only in its restored form does the Harvey design reveal the broad, masculine strokes and complex, space-enclosing geometries that are authentic Lautner. ■



1. *Main entry court*
2. *Bedroom*
3. *Living room*
4. *Dining room*
5. *Kitchen*
6. *Garage*
7. *Greenhouse*

The house's main entry court features a restored trellis of concentric circles supported by beams and a stone column.

Women's Museum
Fair Park, Dallas, Texas

5 **WENDY EVANS JOSEPH'S NEW MUSEUM INSIDE A 1909 STATE FAIR PAVILION RESPECTS THE PAST BUT POINTS TO THE FUTURE AS THE PLACE TO BE.**

By David Dillon

Client: *The Women's Museum: An Institute for the Future*
Design architect: *Wendy Evans Joseph Architect—Wendy Evans Joseph, partner-in-charge; Robert N. Furno, project architect; Andreas Quednau, Anne Chen, Oliver Naumann, Stephen Ohnemus, Melissa Spindel, Thruston Pettus, Trina Miller, design team*
Architect of record: *F&S Partners—Anita Picozzi Moran, AIA, principal-in-charge; Catherine A. Wilson, Michael Woods, AIA, project architects; Lynn Lorch Metz, director of interior design; Susan S. Hukill, interior designer; James C. Patton, AIA, construction administrator*
Consultants: *Datum Engineering (structural); Charles Gojer and Associates (structural/civil); G and S Consulting Engineers (mechanical); Mateo Consulting Engineers (electrical/plumbing); Caye Cook (landscape architecture); Smith Duncan Associates (lighting)*
Size: *70,000 gross square feet*
Cost: *$11,500,000*

Sources
Security devices: *Von Duprin*
Acoustical ceilings and grid: *Armstrong World Industries*
Paints and stains: *Benjamin Moore; Master Coating Technologies*

WWW
For more preservation projects and information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

The Women's Museum: An Institute for the Future is the first comprehensive center for women's studies in the country. Organized by a cadre of A-type Texas women and built almost entirely with private funds, it has a national agenda that belies its regional roots.

Context

The $11.5 million building occupies a restored 1909 coliseum in Dallas' Fair Park, a National Historic Landmark. From a distance it looks like just another foursquare stucco box, except for a sublimely kitschy statue of Venus emerging from a cactus at the front door.

Solution

The interiors are all steel and glass and slashing diagonals, like a turn-of-the-century train shed redesigned for the computer age. "I wanted a dialogue and a feeling of continuity between old and new, like the Musée d'Orsay," explained design architect Wendy Evans Joseph, who associated with F&S Partners of Dallas, the firm that restored the building.

Yet the comparison is somewhat misleading. The Musée d'Orsay has an extensive permanent collection and vast storage and temporary exhibition spaces, whereas the Women's Museum has none of these. It was conceived as a large interactive classroom in which engagement rather than the passive contemplation of exquisite objects is the goal. Visitors passing through the Art Deco lobby, added for the 1936 Texas Centennial, see virtually the entire building at a glance: the historic brick shell with its arched windows and exposed steel trusses; a soaring central space called "The Gathering," punctuated by a 35-foot electronic quilt; the museum shop wrapped in glass and perforated copper screens; and a cantilevered staircase leading to exhibits on the upper floors.

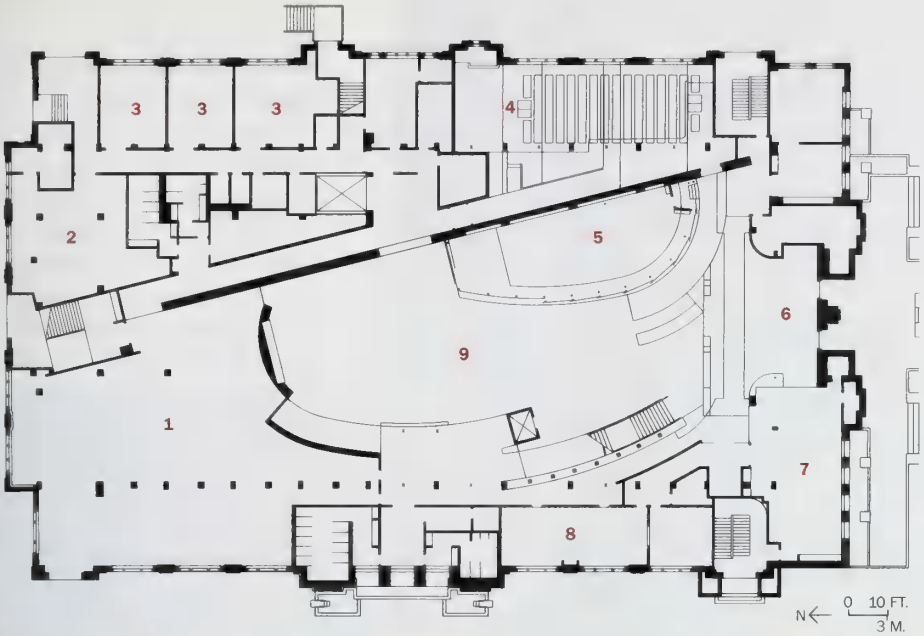
Contributing editor David Dillon is the architecture critic for the Dallas Morning News, *and the author of six books.*





Commentary

As in the U.S. Holocaust Memorial in Washington, D.C.—for which Ms. Joseph was senior designer during her tenure at Pei Cobb Freed & Partners—visitors start at the top of the building and descend gradually to the bottom, moving from past to present, reflective to interactive



1. *Permanent exhibitions*
2. *Mechanical space*
3. *Exhibit support*
4. *Auditorium*
5. *Shop*
6. *Foyer*
7. *Institute*
8. *Meeting rooms*
9. *The Gathering*

The Women's Museum: An Institute for the Future occupies a restored 1909 state fair pavilion. Visitors enter a space architect Wendy Evans Joseph calls "The Gathering." An "electronic quilt" can be seen in the center of the photo below.







In some areas, the new architecture plays aggressively off the old (above and right); in others, it steps back to allow history to have a voice. The result is a tension between old and new, underscoring that the past is important, but the future is the place to be.

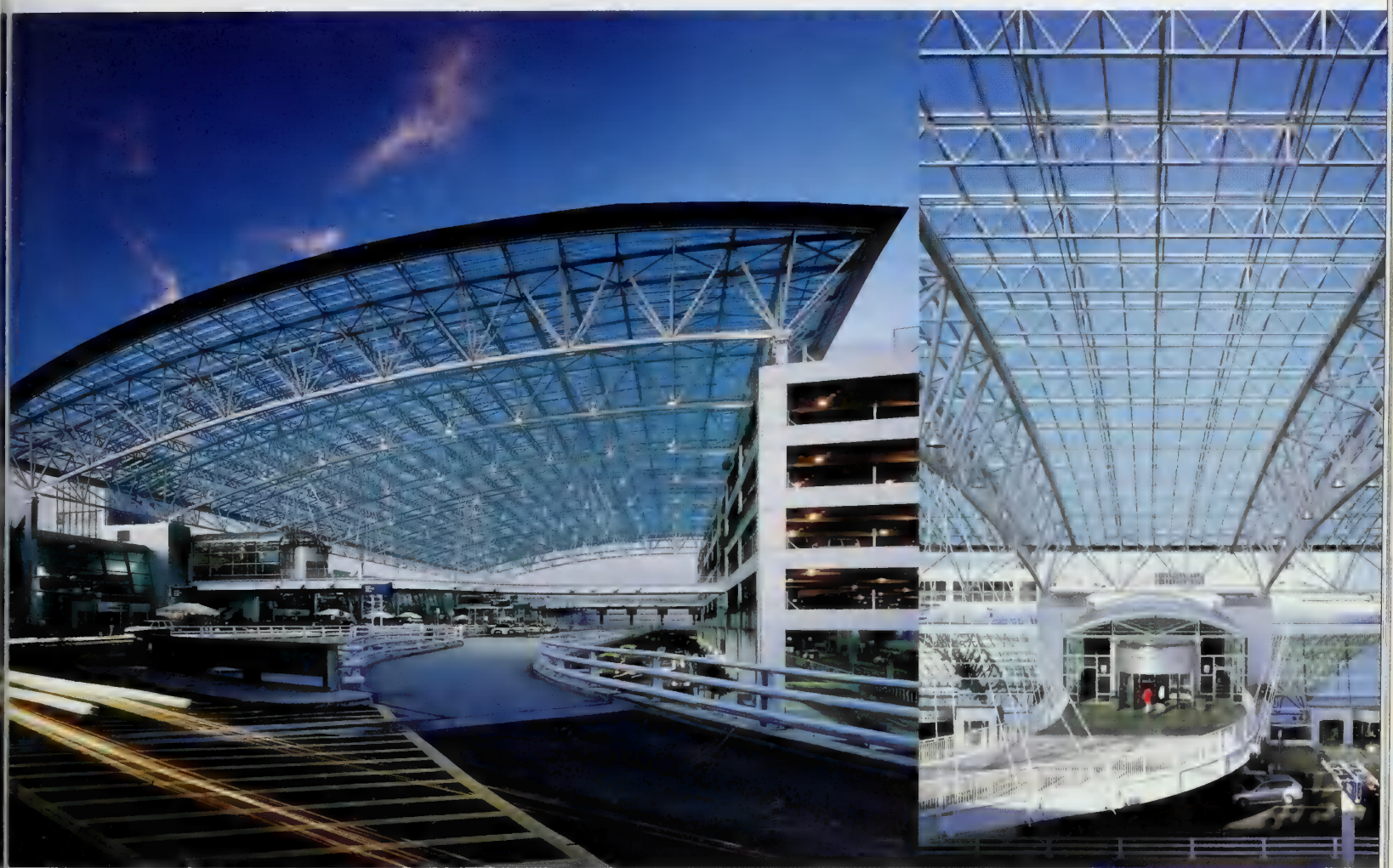
installations. At points they can step away from the exhibits onto balconies and bridges to take in the entire building. In some places—the steel suspension bridge at the west end of The Gathering, or the sliding copper screens around the museum shop—the new architecture plays aggressively off the old. In others, it steps back to let history have a voice, as in the restrained wood ceiling and the deferential treatment of the original arched windows. The result is a subtle tension between old and new, a sense of things shifting and intertwining, that underscores the museum's message: The past is important, but the future is the place to be.

The core of that message is in the exhibits, designed by Whirlwind & Company of New York. They range from static displays of artifacts in glass cases to an entertaining film on female comedians and informative presentations about women's health, women artists and athletes, and female entrepreneurship. The overall focus is on profession and career choices, with a strong emphasis on American women and a calculated avoidance of controversy. Divisive ethical and political issues such as abortion receive minimal attention.

Unfortunately, restoration of the 1936 Art Deco lobby was forced on the museum by local preservationists. In its restored state, it looks more like an abandoned stage set than an introduction to a major museum. Likewise, turning Ms. Joseph's dramatic copper and glass "egg," the most distinctive space in the building, into a backdrop for T-shirts and tote bags does not make as much sense as the original plan of using the space for a theater or a digital classroom.

Yet, for the most part the design is both striking and common sensical. Little remained of C.D. Hill's 1909 coliseum except steel trusses and a few windows, and most of the interior modifications from 1936 had been demolished to create warehouse and studio space. Consequently, Ms. Joseph put her own stamp on things instead of genuflecting before a vanished past. The Women's Museum calls itself "an institute for the future," and the design says precisely that. ■

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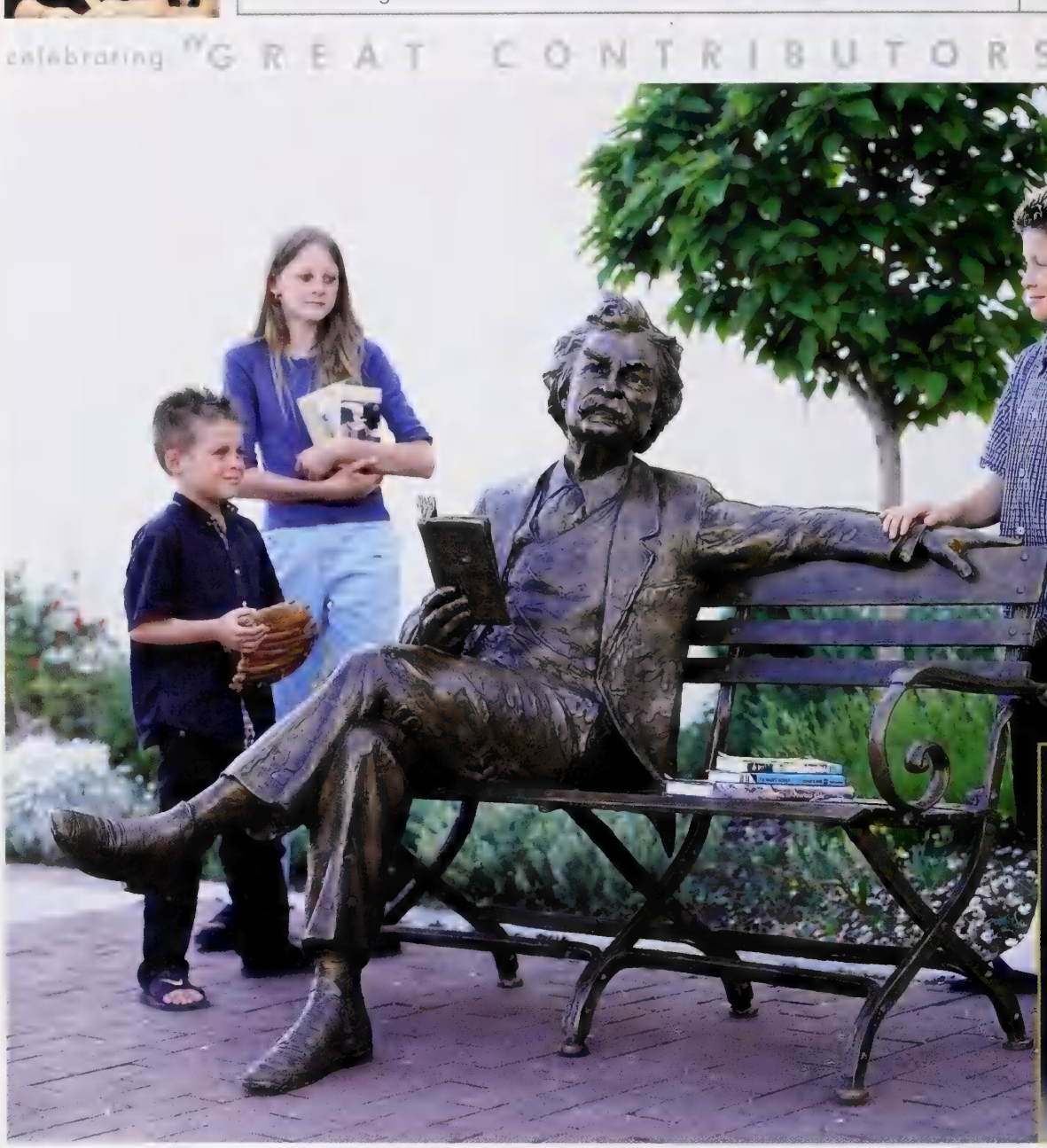
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I hope that as we sit down next to these leaders and get to know them we'll come to appreciate even more their role as contributors and realize that they also were real human beings and yet extraordinary, just as each of us is. Who is to say what contributions we will make!

What lies before us
And what lies behind us
Are tiny matters compared to
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Ralph Waldo Emerson

— Gary Price

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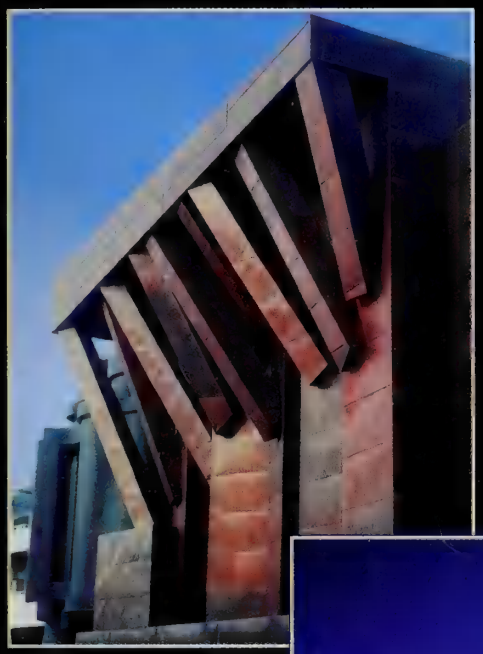
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Healing Exteriors Injured by Time

IN THE CAPABLE HANDS OF TWO NEW YORK ARCHITECTURE FIRMS, A PAIR OF HISTORIC BUILDINGS ARE RETURNED TO THEIR ORIGINAL STATE OF GRACE.

By Sara Hart

Interiors, unless located at Versailles or in other such critically historic spaces, are generally at the mercy of their owners, inasmuch as they exist in the private realm of individuals or institutions. Interior alterations, therefore, generally reflect the needs and tastes of the inhabitants. Exteriors, on the other hand, play a civic role, since they exist in the public realm. The mass, articulation, and condition of a building's facades contribute to or detract from its surrounding environment. In a city as thickly settled as New York, elegant landmarked exteriors sometimes butt up against each other, but more often they stand in troubling contrast to the bland and mediocre structures around them. Two case studies in Manhattan, different in scope but similar in approach, show how issues of architectural authenticity spread beyond the lot lines into the neighborhood. Both efforts required exhaustive research into each building's history, so that the restorations would not only heal the battered facades but also recover the original architects' intentions.

A reputation to uphold

The Cooper Union for the Advancement of Science and Art Foundation Building has a well-deserved reputation for excellence. Frederick A. Peterson designed the massive palazzo in 1858 for inventor-industrialist Peter Cooper. A self-made man, Cooper envisioned a tuition-free institution of higher learning in the disciplines of art, architecture, and engineering. While the headquarters is an icon in New York's East Village, it has suffered from an obstreperous past of both benign neglect and careless repair. All that changed in 1998 when the trustees of Cooper Union hired New York architecture firm Platt Byard Dovell to renovate the damaged exterior of the iconic landmark.

The building's structure is comprised of exterior masonry bearing walls with iron railroad tee beams (invented by Cooper) and cast-iron columns. Peterson composed a facade of pilasters, arches, and simple cor-

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 228 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Discuss the effects of neglect and careless repairs on building exteriors.*
2. *Describe types of damage that is found on exterior masonry.*
3. *Describe methods of determining the condition of a building.*
4. *Discuss procedures in restoring the exterior of a masonry building.*

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The facades of Cooper Union (top) and Harperley Hall (above) before undergoing extensive repairs and restorations.



The Cooper Union for the Advancement of Science and Art, New York, N.Y.

Architect: *Platt Byard Dovell Architects (Paul Spencer Byard, FAIA, principal; Anne Holford-Smith, AIA, project manager)*

Date of completion: *Fall 2001*

Consultants: *Nicholson & Galloway (exterior contractor); Robert Silman Associates (structural engineer); Ivan Myjer, Nicholas Micros (stonework); AM&G Waterproofing (roof)*





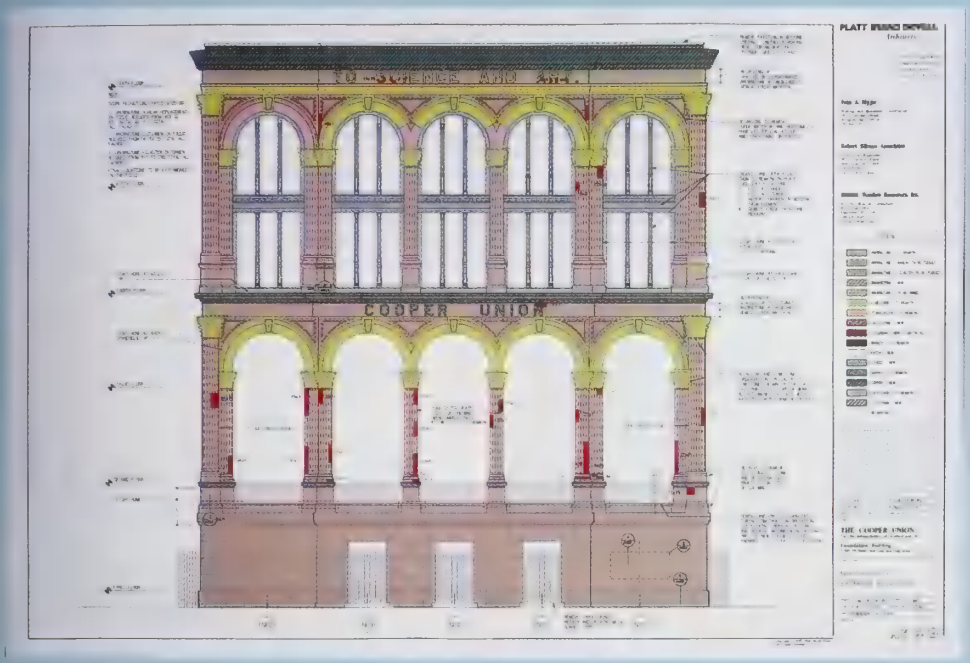
The original building (top) had a flat roof profile. Sawtooth skylights and other additions (above) were added at the end of the nineteenth century. The south facade (right) after the recent restoration.

nices with minimal ornamentation and rendered it in smooth-hewn Portland Connecticut brownstone. In the beginning, the facade had a masculine elegance and legibility that expressed Cooper's idealism. Over the next 140 years, however, the building underwent a series of alterations, not all of them laudable. An observatory built on the roof overstressed the masonry walls so that in 1885 architect Leopold Eidlitz was called in to reconstruct the second-story walls and the building's underpinnings. At the end of the nineteenth century, three great skylights were added to the roof to bring more light into the envelope, but their saw-toothed profiles changed the character significantly. Then in 1974, when then dean John Hejduk modernized the interior, he also replaced some of the exterior column capitals with aluminum and projected a top onto a shaft of the Cooper's famous round elevator.

Even without the alterations and additions, the natural aging process had taken a toll on the exterior. It was common in the nineteenth century to set brownstone for vertical elements, such as pilasters, with the bedding planes running perpendicular to the ground (face-bedded). Because face-bedded brownstone contains a large amount of mica within the bedding planes, the surface sparkles beautifully, especially when honed flat. Face-bedded stone, however, does not weather as well as naturally bedded stone (the bedding planes are set parallel to the ground rather than vertical). Water easily penetrates face-bedded brownstone through weakened mortar joints and flashings. Clay within the beds expands when wet,

WATER EASILY PENETRATES FACE-BEDDED BROWNSTONE THROUGH WEAKENED MORTAR JOINTS AND FLASHINGS.

causing the stone to spall or exfoliate. Over the years, this is what happened to Cooper Union's facade. In the pre-preservation–movement days of the 1950s, a nearly ruinous nostrum was adopted to protect the streets and passersby from falling stone. Without regard for the design, workers removed layers of delaminating stone with the lacerating strokes of jackhammers and chisels. Not only did their attack increase water penetration,



Color working drawings (left) made it easy to distinguish between the diverse stones and other materials, each in various stages of disrepair. The facades had been neglected and carelessly repaired (below left) for 140 years. After the restoration (below), the original crispness is back in the details, but the natural aging process is still evident.





it disfigured the once smooth ashlar and reduced the crisp lines of the Classical elements to a visually dissipated blur.

"The failure of the stone was this delamination," explains project manager Anne Holford-Smith. "Thin layers of stone ⅛ inch thick can flake from the surface. Since the stone is 6 inches thick at the ashlar and much thicker at the pilasters, this is a superficial failure. The only concern besides appearance is the possibility of too much stone loss over the iron anchors, which were set 1½ to 2 inches behind the surface." Rusted anchors were discovered on the north and east facades, where the weather is more severe, but the damage was mostly local.

Principal Paul Byard understands that restoration is no less a design process than new construction and, as such, demands a thoughtfully conceived philosophy about authenticity. The question then becomes: Restore to which incarnation? "Our job was the outside envelope, the wrapper that protects and represents it, and within that, with the original expression—Cooper and Peterson's expression—of what Cooper Union was about," says Byard. "We had to get that back as near as we could so you could read again what Cooper had in mind, sticking with the much-abused surviving original stone. We got a lot of it, obviously softened by the passage of time, but the real thing is just the same to the neighborhood."

Every state-of-the-art technique was used to determine the scope of the work, which in restoration means deciding what can be restored and what must be replaced. Infrared photography helped the architects map and assess the condition of the old iron anchors. Holford-Smith with Ivan Myjer and Nick Micros of Building and Monument Conservation "sounded" all the stones with rubber mallets and stone chisels to determine each stone's condition, since many were stuccoed, painted, or covered with copper to conceal deterioration. A hollow sound suggested at least some deterioration. Paint had also concealed the fact that the facade was not entirely brownstone, but a little limestone here, some terra-cotta there. These additional materials had cracked and spalled more than the brownstone. Employing a color plotter to make color working drawings, the architects created an effective graphical system for distinguishing between materials, labeling existing

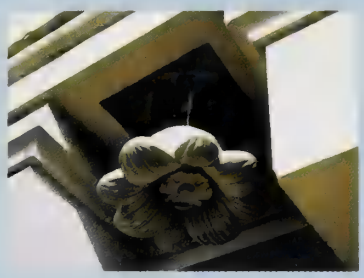
Harperley Hall
New York, N.Y.
Architect: *Murno and Veneziale Architects (Cosmo Veneziale, principal)*
Date of completion: *June 2001*
Consultants: *Stevemar Construction (contractor); Wayman C. Wing (structural engineer); Thomann-Hanry (facade cleaning); Dixie Enterprises (fenestration); Jablonski Berkowitz (conservator); Alfred T. Tebbens Steel (structural and ornamental steel)*

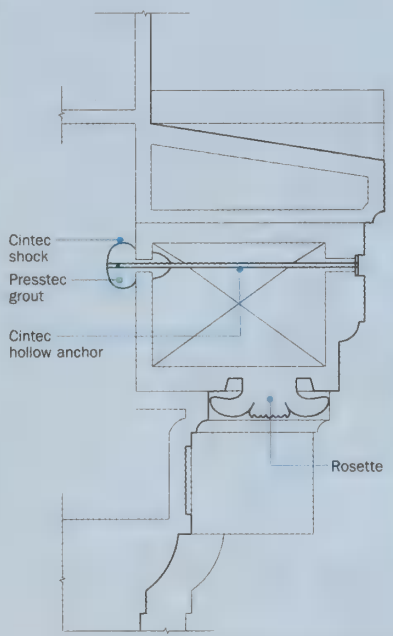






Before restoration of the facades (above), the 1911 brick and terra-cotta apartment building was covered in soot and grime. New fiberglass reinforced concrete rosettes (below) match the originals. After completion, the terra-cotta is restored and new windows installed.





NEW ANCHOR AT EXISTING TERRA COTTA CORNICE

conditions, and specifying areas to be repaired, restored, or replaced.

Cooper Union wanted as much as possible of the building's original materials and composition to remain; however, most of the ashlar on the north portico had to be replaced. The south portico was disassembled and reassembled using a combination of original and new stones, called dutchmen, that fill in where the carved details were too damaged to restore. In a stroke of luck, the Portland Connecticut Brownstone Quarries, providers of the original stone, had reopened in 1992 after having closed its operations in the 1930s. This auspicious coincidence allowed near-perfect matching of the new stone with the old. In areas that were to be painted or that were concealed from view, the architect specified cast stone as a less expensive alternative.

When focus switched to the surfaces mangled by previous repairs with jackhammers and chisels, master stone masons Miroslav Maler and later Nick Micros built full-scale mock-ups to help find a strategy to smooth the deeply scarred stone without removing so much material that the iron anchors would be at risk to exposure and corrosion. The contractor suggested wet honing the ashlar first to remove loose surface delamination. The final retooling was accomplished using carbon-tipped pneumatic chisels, which yielded a mottled surface that disguised the scarring but did not hide the age of the 143-year-old building.

First, do no harm

Cosmo Veneziale is clear on what makes any kind of restoration authentic: research. In-depth, methodical research prior to making any assumptions leads to better decision making along the way. Veneziale's New York–based firm, Murno and Veneziale, won the commission to restore the facades of Harperley Hall, a tony residential building on Manhattan's Central Park West. A handsome 1911 Arts and Crafts building, Harperley Hall, designed by Henry Wilheim Wilkinson, had not aged gracefully; its grand ornamentation and detailing had been obscured and damaged by decades of soot and grime.

The facades had never been cleaned, which prompted Veneziale to wonder at the start what degree of surface deterioration or structural



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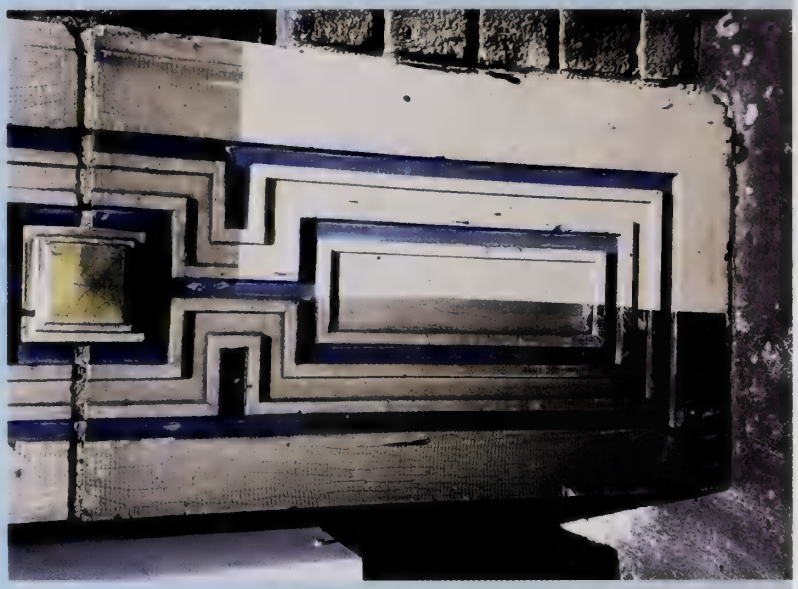
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The *façade gommage* method uses a fine powder under low pressure to gently remove dirt from exterior surfaces (right and below). Craftsmen replicated the existing terra-cotta details (above right) to match and replace the damaged original ones (above left).





failures were also hidden below the dirt. He stressed to the client that the most important initial action would be to determine through careful investigation the scope of work, which would, in turn, ensure proper bidding by subcontractors. "If this is done thoroughly and accurately, there will be few extras to inflate the construction costs in the end," he says. "We had very few change orders." The second action of any successful renovation project is to hire a contractor with exterior restoration experience. There are new methods and materials on the market that require that the contractor's workers be certified by the manufacturer. Finally, a good conservator is needed in the laboratory to check everything from the mortar mix to the species of the woods to the original colors.

In this case, research meant documenting, photographing, and sketching every square foot of the 12-story building. In order to determine the extent of damage as well as the actual materials, the entire envelope first had to be covered. Fearing that the numerous cracks in the masonry would put the interior at risk for damage from a high-pressure water cleaning system, the architect specified a gentler method called *façade gommage*, a proprietary process developed by the Paris-based firm Thomann-Hanry and performed by a team from its New York branch. *Gommage* (French for erase) is an ecologically sound cleaning process, which removes dirt and pollution particles by projecting a fine powder under low pressure onto the facade. No chemicals, water, or detergents are used. The size of the nontoxic organic or mineral-based powder particles are selected according to the type of masonry and nature of the dirt.

Trained technicians control the airflow with a back and forth movement, which resembles a rubbing process more than a blasting operation. Workers at Harperley Hall were enclosed on the scaffolding in a cabin equipped with vacuums, which immediately recovered dust and dirt, then sprayed the particles with water, and flushed them through a hose into a container on the ground. After a thorough cleaning, architect and contractor took to the scaffolding and covered every inch, sketching and photographing each injury to the masonry, lintels, sills, balconies, and ornamentation. Each was repaired, restored, or replicated, depending on individual circumstances, by trained craftsmen.

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Veneziale's meticulous research efforts extended to the fenestration. The original windows were Southern Yellow Pine beneath as many as 20 coats of paint. Replacement of all 812 windows and 33 pairs of French doors would have come at considerable cost. After investigating and rejecting aluminum replacement fenestration as not in keeping with the character of the building, the client agreed to custom-built, solid Honduras mahogany frames, painted to match the terra-cotta.

Two inconspicuous details varied from the originals in the window specifications. Instead of using weights and chain pockets to balance the operable sashes, the architect specified a Class 5 spring-type balance. This choice allowed the windows and doors to be installed from the interior of the building rather than from scaffolding on the exterior. Not only were the balances less expensive, a difficult installation process became easier. Tolerances were quite small. Even minimum racking would have interfered with operation. "The windows are like fine furniture and had to be treated as such," says Veneziale. The second detail change involved the true-divided lites. Most windows today are comprised of two panes separated by an air space. Such a thickness would have changed the profile of frames, so the architect specified ¼-inch laminated safety glass.

Although circumstances and building types differed, strategies in both projects were based on a desire to reestablish the soul of each building. Even with a plethora of new products that can imitate stone, terra-cotta, and bronze, authenticity still seems to come not from a perfect prosthesis, but from the continuity that the original bones bring to the next generation. ■



The balconies were removed, refurbished, and the steel structure replaced.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Healing Exteriors Injured by Time" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers [page 228].**
- **Fill out and submit the AIA/CES education reporting form [page 228] or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. Why does face-bedded brownstone not weather as well as naturally bedded stone?
- **a.** The bedding planes are set parallel to the ground rather than vertical.
- **b.** Brownstone contains a large amount of mica within the bedding planes.
- **c.** Clay protects naturally bedded stone by expanding when it is wet.
- **d.** Face-bedded brownstone allows water to penetrate mortar joints.

2. Which of the following was not accomplished by workers removing layers of delaminating stone from Cooper Union's facade?
- **a.** Water penetration increased.
- **b.** It disfigured the once smooth ashlar.
- **c.** The stone failure went several inches deep into the stone.
- **d.** The lines of the Classical decoration were blurred.

3. Which of these technologies was not used to document Cooper Union's scope of restoration work?
- **a.** infrared photography to determine what type of stone was under the paint
- **b.** infrared photography to assess the condition of the old iron anchors
- **c.** sounding with rubber mallets and stone chisels to determine each stone's condition
- **d.** color-plotted working drawings to distinguish between materials and label existing conditions

4. At Cooper Union there was a near-perfect matching of the new stone with the old because of which of the following?
- **a.** They used brownstone from Portland.
- **b.** They used dutchmen.
- **c.** They used cast stone.
- **d.** They used stone from a quarry that had been closed for 70 years.

5. Which method was not included as research at Harperley Hall?
- **a.** painting
- **b.** photographing
- **c.** sketching
- **d.** measuring

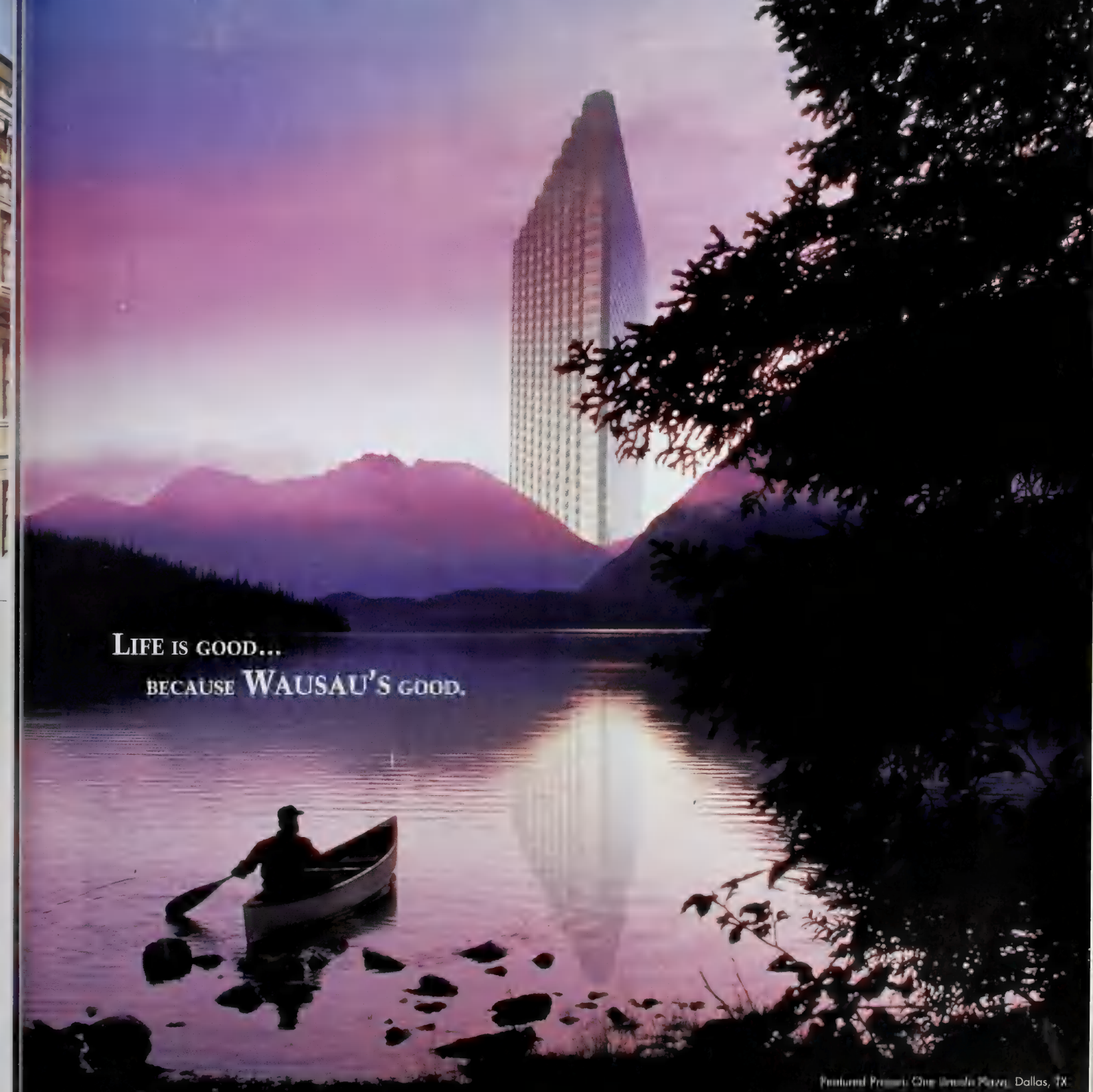
6. Why was a high-pressure water cleaning system not used at Harperley Hall?
- **a.** Fear that cracks in the masonry would put the interiors at risk for damage.
- **b.** Fear that it would cause debris to fall on people in the area.
- **c.** The building owners owned a *gommage* cleaning company.
- **d.** They could not get enough water pressure at this location.

7. How does *gommage* work?
- **a.** by vacuuming the facade
- **b.** by spraying the facade with chemicals
- **c.** by projecting a fine powder onto the facade
- **d.** by washing the facade with detergents

8. What was used to replace the yellow pine windows at Harperley Hall?
- **a.** vinyl clad pine frames
- **b.** solid mahogany frames
- **c.** extruded aluminum frames
- **d.** solid vinyl frames

9. Why were the windows changed from weights and chain-pocket balance to spring-type balance?
- **a.** It allowed less effort in raising the windows for emergency egress.
- **b.** It allowed the windows to be installed from the exterior.
- **c.** It allowed the use of better technology.
- **d.** It allowed the windows to be installed from the interior.

10. Why were the masonry walls at Cooper Union overstressed so that they needed reconstruction in 1885?
- **a.** The brownstone used was too soft.
- **b.** An observatory was added on the roof.
- **c.** The cast-iron columns had rusted.
- **d.** Three skylights had been added to the roof.



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Digital Architect

Digital technologies aid in adaptive reuse

By Jerry Laiserin, FAIA

The digital revolution reshaped the operation, organization, and service offerings of entire industries, perhaps none more so than financial services—banking, insurance, and securities trading. As a consequence, downtown office buildings built to suit the pre-digital needs of financial institutions were rendered obsolete. Many of these buildings have floor plates too small to be utilized efficiently by information-age businesses, and their electrical and mechanical systems cannot tolerate the demands of high-density, high-bandwidth computer environments. By the mid-1990s, the central business districts of many American cities were dotted with vacant relics abandoned by the financial organizations that built them. Structurally sound and often architecturally significant, these crucial pieces of the urban landscape seemed to have no economically viable future.

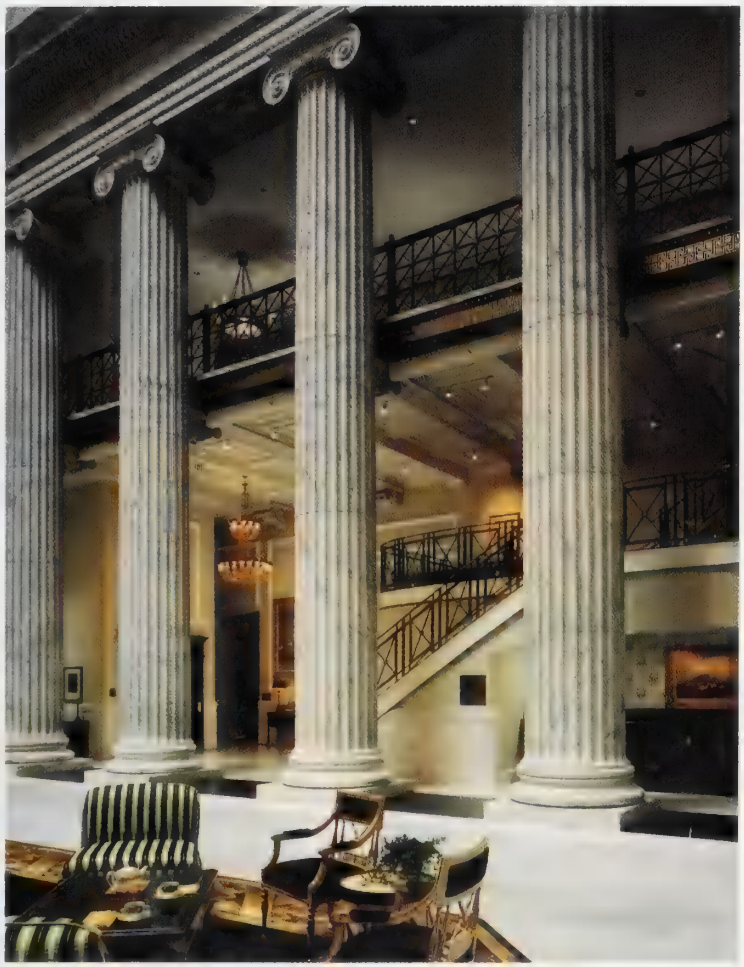
But the times changed, and shifting economics of downtown development in the late 1990s created a new demand for centrally located businesses, shopping areas, and other services, including hotels. As an occupancy type, hotels can take advantage of smaller floor plates with relatively shallow depth from windows to core. And while a floor of hotel rooms requires more plumbing than the same size floor of offices, hotel layouts are much less demanding of electrical services, total HVAC loads, and elevator capacity. Historic building features that might be costly encumbrances for a modern office can be transformed into revenue-enhancing amenities for an upscale hotel. Ironically, the digital technologies that rendered these buildings obsolete for their original purposes now enable architects to efficiently adapt them for reuse as hotels.

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

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The old, rendered new

Examples of office-to-hotel conversions abound nationwide, from Denver's Hotel Teatro (1998, built as the Tramway Tower in 1911) to Chicago's Burnham (1999, formerly the Reliance building, built in 1894) and New York's W Union Square (2000, in the 1911 headquarters of Guardian Life). But few locales can match the cluster of hotels that debuted in Center City Philadelphia in 2000. The much-beloved PSFS building, a 1932 Howe & Lescaze landmark of early Modernism, was converted to a Loews Hotel by Philadelphia architects Bower Lewis Thrower, working with interior designer Daroff Design Inc. [RECORD, October 2000, pages 136–147]. Just a few blocks away, a new Ritz-Carlton hotel was carved out of the 1908 and 1931 buildings of McKim, Meade and White's Girard Trust and Mellon Bank (MMW had teamed with canonic Philadelphia architects Furness, Evans and Company on the 1908 building) by the historic preservation studio of The Hillier Group (THG), based in Princeton, N.J., with an office in Philadelphia. And a few blocks further on, Vincent G. Kling's 1964 Philadelphia Stock Exchange Building was transformed into the Hotel Sofitel by New York architects Brennan Beer Gorman, with Brennan Beer Gorman Monk Interiors (BBG-BBGM).



New marble, steel, and glass components were fabricated directly from the architects' CAD files, ensuring consistency with historic details in adapting a 1908 banking hall as the lobby of Philadelphia's new Ritz-Carlton hotel.

By reviewing the ways each firm used computers to accomplish its objectives—with building programs that were similar in size, use, and location—it is possible to identify key contributions of digital technology to the success of these projects.

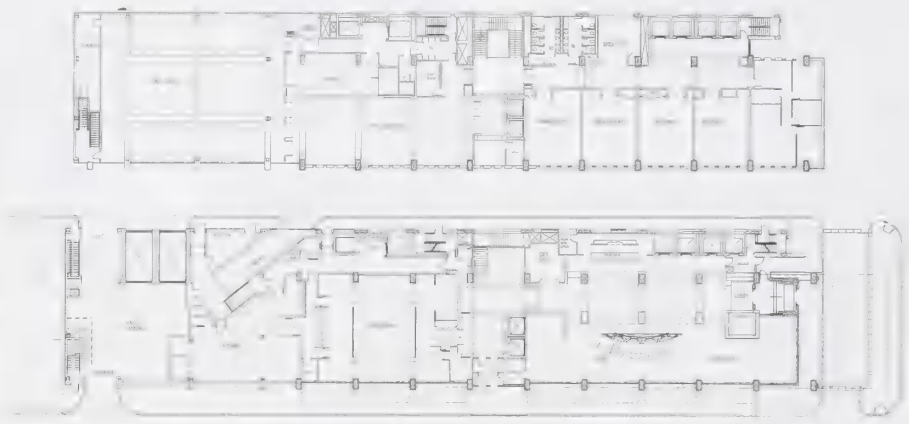
Old prints and new methods

Although the architects on these projects were able to rely on extensive and accurate sets of existing blueprints, all three firms chose to redraw existing conditions in their CAD software rather than scanning

and converting the paper originals into digital form. Mario LaGuardia, AIA, the BBG-BBGM partner-in-charge on the Sofitel project, points out that financial institutions typically leave behind good documentation of their facilities, but the amount of manual cleanup required to derive CAD files from scanned paper plans makes scanning too time-consuming and costly. BBG-BBGM also needed to verify critical building features on-site as they redrew the plans. At BLT architects, principal-in-charge Andrew Jones, AIA, also chose to redraw in CAD for reasons of speed and accuracy, despite having access to working drawings and shop drawings of the PSFS building in the Lescaze archives at Syracuse University. The Loews Hotel required a small addition on a lot adjoining PSFS to the south, and Jones was able to import the digital file of that site survey into his new drawings.

In addition to regular working drawings, Jim Garrison, AIA, the project architect for THG on the Ritz-Carlton job, was fortunate to find a complete set of steel shop drawings and an old steel manual in a basement storeroom of the Mellon Bank. Using data from the old manual, THG sized and detailed the antique steel sections using MicroGDS CAD software. Relying on a scrapbook of construction administration sketches and photos discovered in the MMW archives at Columbia University, Garrison was confident that the MicroGDS model accurately reflected the structural conditions behind valuable historic materials, such as Georgia marble walls and ornamental plaster moldings, so the firm avoided invasive testing [RECORD, July 2000, pages 189–190]. Similarly, although Garrison had extensive experience with tools such as 3D laser scanning (by Quantapoint) and photogrammetry (deriving 3D computer models from photographs, a service provided by Frazier Associates) often used in renovations, these measures were unnecessary because of the high quality of existing documentation of fine details and hard-to-reach elements such as the coffered dome in the 1908 building's rotunda.

Despite the availability of complete sets of old drawings, the architects for the Hotel Sofitel Philadelphia achieved greater accuracy, efficiency, and integration of new and existing construction by redrawing all plans of the former Philadelphia Stock Exchange in AutoCAD.



Role models

Beyond merely replacing paper drawings, digital models support analytic and design techniques not possible with paper. For example, the Loews Hotel program called for a swimming pool on the fifth floor, which entailed the removal of three girders. BLT's structural engineering consultants, Cagley Harman Associates of Philadelphia, used the existing steel shop drawings to create a 3D AutoCAD model of the building's framing and connections. From this model, they calculated the additional bracing needed for the pool's eccentric loading and also proved that the original framing conformed to Philadelphia's current seismic requirements. BBG-BBGM, who also worked with Cagley Harmon Associates during the Hotel Sofitel project, regularly exchanged AutoCAD files with them to coordinate the alignment of a guest room tower addition—one without an expansion joint between the new and existing buildings.

The Ritz-Carlton program called for a new staircase—a curved, 25-foot-wide, marble, steel, and glass affair leading to the lobby and reception area (formerly the banking hall). THG architects modeled the stair in MicroGDS, then converted the model to AutoCAD drawings for fabrication. A quarry in Italy cut the marble using computer numerical control machines driven directly from the CAD files, which eliminated the need for shop drawings. The Canadian fabricators of the stair's steel and glass components derived their shop drawings from CAD files, and the fabrication was coordinated via e-mail.

A picture is worth ...

Both the Loews and Ritz-Carlton projects qualified for historic preservation tax credits [RECORD, October 2000, pages 63–64], which required close coordination between the architects and Pennsylvania's State Historic Preservation Office (SHPO) for approvals and certifications. Both firms relied on digital photography e-mailed to SHPO for quick turnaround on decisions such as treatment of historic details or the profile of replacement windows.

Although Web-based project collaboration networks were on the market when these adaptations were underway [RECORD, September 1999, pages 53–54; March 2001, pages 173–174], none of the architects used them, although some have explored these tools since. Roger Sparling, AIA, director of MIS at BBG-BBGM, finds that e-mail is sufficient for tracking communication and design decisions; for the firm's international projects, e-mail is often the least common denominator for communication. Jones at BLT relied on file sharing with consultants for the early phases of the Loews project, although in 1998, the design team was making the transition from mailing floppy disks to e-mailing files. BLT is now using a client-funded project collaboration network for a hotel project in Atlantic City. Similarly, the Ritz-Carlton teamed the architects at THG with interior designers in Los Angeles, making the project heavily dependent on e-mail, but THG has since experimented with a wide range of online collaboration tools.

Lessons learned

Even with high-quality paper documentation, redrawing existing conditions in CAD proved faster than scanning and correcting the scans. Once building information is in digital form, modeling techniques allow for analysis, design, and coordination more quickly and at a much more sophisticated level than paper-based processes. Digital photography, e-mail, and online file sharing can accelerate decision making and approvals. As Jones said, "We did adaptive reuse projects before we had computers, but CAD and related tools make it easier, faster, and more economical." Digital tools will continue to help architects breathe new life into old buildings. ■

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EIFS: THE NEXT GENERATION

EIFS (EXTERIOR INSULATION AND FINISH SYSTEM) is an insulating, decorative and protective finish system for exterior walls that can be installed on any type of construction. It is the only exterior wall covering that insulates and provides weather protection in a selection of shapes, colors, and textures that can replicate almost any architectural style or finish material, or stand by itself as an architectural finish. In 1952, two significant developments took place that led to the development of EIFS in Europe. The first patent was granted for expanded polystyrene (EPS) insulation board and the first synthetic plaster, an organic plaster using water based binders, was developed. The use of EPS and synthetic resin materials together began in the late 1950s and in 1963 EIFS was marketed in Europe. EIFS answered a need in the European construction market for a material that could insulate older masonry structures and enhance their appearance. The technology for EIFS was transferred to the United States in 1969. EIMA[1] was formed in 1981 to represent the common interests of the industry. By 1995 nearly 200 million square feet (18,580,608 m^2) of EIFS were being installed annually on exterior walls in North America. In 1995, the industry suffered a setback when a number of EIFS clad homes in the Wilmington, North Carolina area were discovered with moisture damage behind the cladding. The damage was caused by poor construction detailing and practices, principally, the omission or improper installation of flashing in violation of minimum standards of construction set forth in building codes. A federal and several state class action lawsuits were filed, only one of which was certified (in the State of North Carolina). The North Carolina class action was settled by manufacturers. In the year 2000, EIFS—the next generation, was launched to propel EIFS into the next century.

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LEARNING OBJECTIVES

- Compare traditional EIFS to EIFS/the next generation.
- Describe the main drawback of EIFS/with traditional moisture protection
- Identify construction detailing to avoid water intrusion problems in EIFS.

TRADITIONAL EIFS

A traditional EIFS (Figure 1) is a non-load bearing cladding and consists of five components: an insulation board, an adhesive and/or mechanical fastener to attach the insulation board to a substrate, reinforcing mesh for impact resistance, a base coat to embed the reinforcing mesh and to provide weather resistance, and a decorative and protective finish coat. This is the most popular type of EIFS and is classified as a Class PB (polymer based) System by EIMA. It is lightweight, easily accommodates aesthetic features such as decorative trim and reveals, and, in general, it does not require expansion and control joints like conventional stucco or masonry veneer. Its main limitations are impact resistance, and it is a barrier, or face seal wall design, which, in tandem with other barrier components—windows and sealants—resists water penetration at its outer surface.

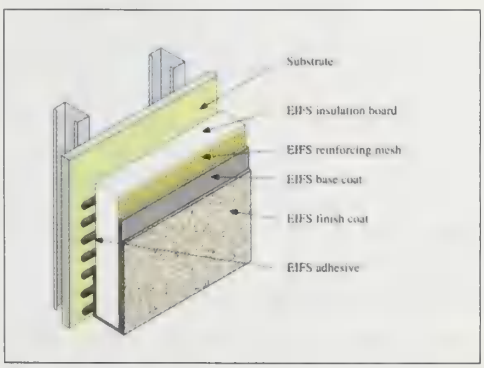


Figure 1. A Class PB EIFS consists of five components: adhesive, insulation board, base coat, reinforcing mesh and finish coat. Together they function as a decorative and protective insulating wall covering.

EIFS AND BUILDING CODES

While EIFS have been in use in the United States for more than 30 years, they are not explicitly covered in model building codes. For materials or methods of construction that are not covered, building codes generally permit the use of alternates by providing the building code official with the authority to approve alternates with justification such as testing, engineering analysis, or some other evidence of compliance with the intent of the code. Such approval is generally granted on the basis of evaluation reports written by model code evaluation services. The evaluation report establishes the method in which a system or product is to be used, limitations associated with its use, and that it is an equivalent to the construction materials/methods of the code. The evaluation report should always be consulted when considering EIFS as the exterior wall covering, as it not only provides a means to verify compliance with the applicable code, but it is also evidence that the product has been thoroughly tested and evaluated.

To obtain an evaluation report manufacturers must satisfy numerous criteria published by evaluation services that verify system durability, structural and fire performance, as well as compliance with quality control programs. The use of foam plastic insulation in wall construction, in particular, requires extensive testing to verify performance. The IBC[2] presents the most comprehensive set of requirements, as it essentially merges the requirements of other model codes into one book. The basic requirements for the use of foam plastic in walls are established in Chapter 26. This includes:

- Labeling
- Separation from the interior.
- Fire performance testing (see Tables 1D and 1E in this article)



Figure 2. The photo illustrates testing in accordance with UBC Standard 26-9. The test replicates a two story structure with a fire in an interior compartment and examines lateral and vertical flame spread. The test is one of many criteria set forth in model codes to evaluate the performance of foam plastic-based wall assemblies. It is one of a series of fire tests that qualifies EIFS for use on buildings of noncombustible construction.

EIFS—THE NEXT GENERATION

Class PB EIFS have been the predominant type of EIFS sold in North America, mainly because they combine low installed cost in an attractive multi-functional exterior wall covering. In recent years, as a result of building code requirements, several types of EIFS have been developed that incorporate traditional moisture protection, asphalt saturated felt, behind the EIFS. In most cases these newer types of EIFS require mechanical attachment, because EIFS adhesives will not stick to sheet goods. Mechanical fasteners have drawbacks. They act as thermal short circuits, which cause heat loss and can cause ghosting or telegraphing of the fasteners through the finished wall surface. They may also limit wind load resistance of the assembly. More recently, EIFS—the next generation, was developed to overcome the limitations of traditional moisture protection and mechanical fasteners. EIFS—the next generation incorporates a fluid applied membrane behind the EIFS wall covering on the substrate (Figure 3). The membrane has two functions:

- Air infiltration and exfiltration resistance
- Secondary moisture protection

As an air barrier the fluid applied membrane minimizes the risk of condensation within the building envelope by eliminating mass transfer of warm moisture laden interior air (in cold climates) to the exterior. As a secondary moisture barrier it provides a second line of defense in the event of a breach in the EIFS caused by impact damage or abuse. In combination with vertical ribbons of adhesive and starter tack with weepholes, the assembly provides both primary and secondary moisture protection and drainage for incidental moisture to weep to the exterior. Unlike traditional moisture protection prescribed by code (asphalt saturated felt) or housewrap, fluid applied membrane is structural once it is applied to the substrate, since it essentially coats and adheres to the substrate. This eliminates the pitfalls associated with felt or fabric

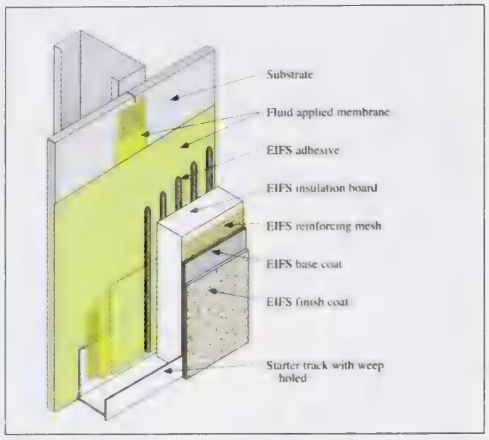


Figure 3. EIFS--the next generation incorporates a fluid applied membrane that functions as an air barrier and secondary moisture barrier in the wall assembly. Weepholes (not shown) behind the drip edge of the starter track direct water to the exterior in the event of a breach in the EIFS wall covering caused by impact or abuse.

moisture protection—punctures, and the potential for tearing and mis-lapping during installation. It also optimizes performance as an air and moisture barrier. Since the membrane is seamless and bonded to the substrate it won't leak water through holes or tears, and it won't flutter and compromise air barrier performance in the presence of air pressure differences or fluctuations, as do sheet goods[3]. The membrane is fully compatible with EIFS adhesives, and thus eliminates any need for mechanical attachment of insulation board, normally required over sheet goods. Thus thermal bridging is eliminated and negative wind load resistance, often limited by pull through of the EPS insulation board through the fasteners in mechanically attached systems, is no longer a limiting factor.

Performance criteria for EIFS — the next generation have been established by model code agencies. In particular stringent criteria for fluid applied membranes are established by SBCCI[4] and ICBO[5]. The SBCCI criteria require the membrane to sustain a static head of 21.6 inches (55 cm) of water for a period of at least 5 hours before and after aging. They also require resistance to air infiltration not to exceed 0.06 cfm/ft^2 (0.305 L/s•m^2) at a pressure differential across the wall section of 0.3 inches (7.6 mm) of water. ICBO acceptance criteria require no water leakage after exposure to cyclic wind loading followed by 75 minutes of water spray with simultaneous air-pressure differential that approximates a sustained 50 mph (80 km/h) wind. In essence, these performance criteria require the wall to be waterproof and resistant to air infiltration before the EIFS wall covering is put in place. They also require the membrane to be resistant to the affects of UV aging even though it will not be subjected to UV exposure while in service. This substantially exceeds the performance requirements for conventional water-resistive barriers prescribed in the code. Refer to Table 1 for a complete listing of performance criteria for EIFS—the next generation.

EIFS DESIGN AND DETAILING

Regardless of whether one chooses to design with a traditional Class PB EIFS or with EIFS—the next generation, a vital component for long term durability and life safety is construction detailing. "As much as 90 percent of all water intrusion problems occur within 1 percent of the total building exterior surface area. The 1 percent of the structure's façade contains the terminations and transition detailing that all too frequently lead to envelope failures."[6] With this in mind, design criteria and detailing considerations for EIFS are listed below:

1. **Wind Load**—design for maximum allowable system deflection, normal to the plane of the wall, of L/240. This is a basic requirement for stiffness of the supporting wall construction. The EIFS manufacturers code evaluation report and/or independent tests should be checked to determine design pressure limits.
2. **Moisture Control**—prevent the accumulation of water behind the EIF system, either by condensation or leakage into the wall construction, in the design and detailing of the wall assembly. This is accomplished in three ways:
   i.) by providing flashing above window and door heads, beneath window and door sills (Figure 4), at roof/wall intersections (Figure 5), decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall, such that water is directed to the exterior, not into the wall.

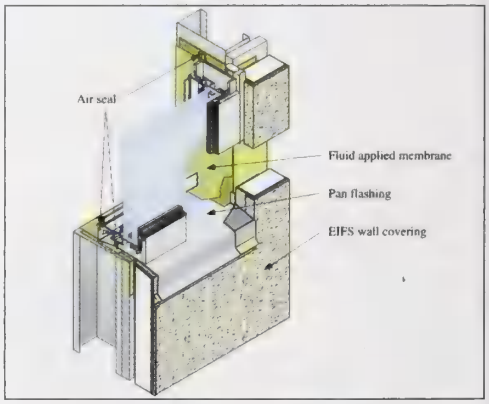


Figure 4. Sill flashing is provided beneath potential leak sources such as windows to direct water to the exterior, not into the wall assembly. The fluid applied membrane protects the rough opening. The inner seals beneath the window, at the back leg of the pan flashing, and along the jamb interface, function as air seals to reduce the effect of pressure differential, one of the driving forces of water intrusion, at seams in the construction.

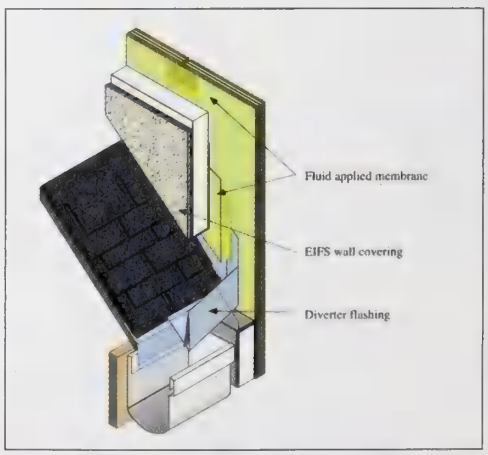


Figure 5—critical details such as roof/wall intersections must include diverter flashing that integrates with the exterior wall covering such that rain water is directed to the exterior, not into or behind the exterior wall covering.

ii.) by controlling air leakage in cold climates to prevent water vapor in moist air from condensing and being deposited inside the wall assembly. EIFS—the next generation includes an air barrier behind the EIFS on the supporting construction. Note, however, that air barrier continuity is necessary to prevent excess air leakage. Thus, adjoining components in the building envelope assembly—windows, doors, and roof membranes—must be connected to the EIFS air barrier. The effects of air tightness on mechanical ventilation requirements and indoor air quality should also be considered in the overall project evaluation.

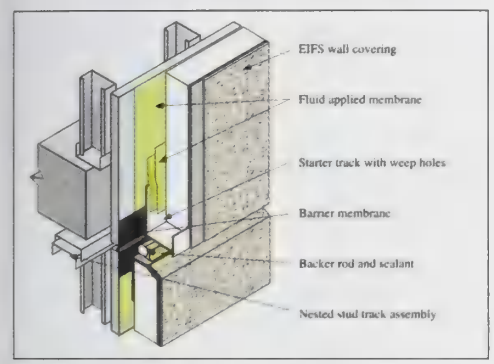


Figure 6. Expansion joints are required at floor lines in construction where floor line deflection is anticipated. In this case a nested stud in the structural frame assembly accommodates deflection. The EIFS wall covering must also include a joint to accommodate the movement. In wood frame construction joints are similarly required to accommodate anticipated movement caused by cross grain shrinkage of wood joists.

iii.) by minimizing the risk of condensation in the wall assembly caused by water vapor diffusion. In the event condensation is identified in the wall assembly, increasing the thickness of insulation will generally move the dew point outward to a safer location in the wall assembly or eliminate it altogether. In any event one should generally avoid the use of vapor retarders on the interior side of the wall in warm, humid climates. The vapor retarder has the effect of inhibiting drying in the event of incidental moisture intrusion, and can potentially cause damage to interior wall components should water vapor condense behind them. In general condensation has not been a significant source of moisture accumulation in EIFS clad walls. By far, the largest risk of water damage in walls is bulk water entry from rainfall and leaks associated with poorly designed or improperly constructed details.

3. **Impact Resistance**—EIFS impact resistance can be greatly enhanced by adding a layer of reinforcing mesh to the standard grade of mesh. Areas subject to abuse such as ground floors, entrances, columns at carports, etc., should receive the extra mesh layer to a minimum height of 6'-0" (1.8 m) above finished grade. Impact resistance is classified by EIMA as Levels 1-4, with 4 being the highest impact resistance level. Where additional impact resistance is required, contract drawings should indicate the locations on elevations.

4. **Color Selection**—select finish coat with a light reflectance value of 20 or greater.

Light reflectance is a relative measure of lightness of a color. The higher the number on a scale of 1-100 the lighter the color. The use of dark colors (lightness value of less than 20) is not recommended with EIF Systems that incorporate EPS. EPS has a service temperature limitation of approximately 160°F (71°C) and sustained exposure at this level or higher could result in deformation of the EPS and delamination of the EIFS coatings. Consideration should also be given to light reflective surfaces such as mirrored glass, or white concrete in full sun, which can reflect sunlight onto an EIFS wall surface and increase surface temperatures.

5. **Joints are required at the following locations in EIFS wall assemblies:**

i.) where they exist in the substrate or supporting construction

ii.) where the EIFS adjoins dissimilar construction or materials (Figure 7)

iii.) where pre-fabricated panels abut one another

iv.) where the substrate changes

v.) at changes in building height or where other significant changes in building shape or structural system occur that could cause differential movement

vi.) at floor lines in multi-level wood frame construction (Figure 6)

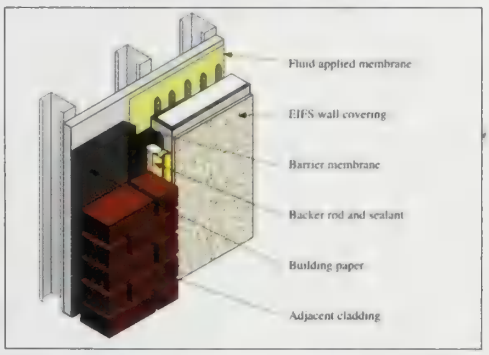


Figure 7. A two stage joint sealant design can be accomplished with a primary outer seal and secondary inner seal (barrier membrane). Note, the fluid applied membrane, although not shown behind the adjacent cladding in this case, can also take the place of the traditional moisture protection behind the adjacent cladding.

In addition to the above joint locations, wherever the EIFS terminates at abutting elements such as windows, doors, fixture penetrations, and dissimilar materials, a joint must be provided between the adjoining materials (Figure 4). Joints should be sealed with compatible backer rod and sealant that has been evaluated in accordance with ASTM C 1382[7]. Joint sealants tested in accordance with this method are subjected to harsh exposures that enable the specifier to verify joint performance under an array of environmental conditions. Consideration should also be given to joint designs with secondary moisture protection and drainage to the exterior (Figure 7). Such two stage joint designs can minimize maintenance associated with sealants, particularly on mid or high-rise structures.

6. **Grade Condition**—do not specify EIFS below grade (unless the system is especially designed for use below grade) or for use on surfaces subject to continuous or intermittent water immersion or hydrostatic pressure. EIFS is a finish material intended for use as a vertical above grade wall covering. It should be noted that in recent years some codes have prohibited the use of foam plastic below grade because of the potential for termites to migrate undetected behind foam plastic insulation.

7. **Trim, Projecting Architectural Features and Reveals**— all trim and projecting architectural features must have a minimum 1:2 [27°] slope along their top surface. All horizontal reveals must have a minimum 1:2 [27°] slope along their bottom surface. Slope should be increased for northern climates to prevent accumulation of ice/snow and water on the surface. Where the trim/feature or bottom surface of the reveal projects more than 2 inches (51 mm) from the face of the EIFS wall plane, the top surface should be protected with waterproof base coat to supplement the standard base coat. The use of trim and features that exceed the maximum allowable thickness of EPS permitted by code (typically 4 inches [100 mm]) should be avoided. Periodic inspections and increased maintenance may be required to maintain the surface integrity of EIFS on weather exposed sloped surfaces. Therefore limit projecting features to easily accessible areas and limit total area to facilitate maintenance and to minimize the maintenance burden that can be associated with such features.

Lastly, for large weather exposed projecting features such as ledges or cornices, the feature should be built out with framing or other structural support and protected with metal coping or flashing.

8. **Fire Protection**—for Types I, II, III and IV construction do not use foam plastic in excess of 4 inches (100 mm) thick unless it is specifically recognized in the EIFS manufacturers code evaluation report or approved by the code official. Where a fire-resistance rating is required use EIFS over an existing rated assembly and refer to the manufacturer's applicable evaluation report for limitations that may apply. EIFS is considered not to add or detract from the fire-resistance of a rated assembly. ■

CONCLUSION:

EIFS have been in use worldwide for nearly half a century, and in North America for more than 30 years. They offer excellent thermal and moisture protection and a wide variety of aesthetic possibilities for exterior walls at an affordable cost. When choosing EIFS as an exterior wall covering it is important to consider code compliance, which can generally be verified with the manufacturer's model code evaluation report. EIFS—the next generation includes a fluid applied membrane material applied to the substrate as an air and moisture barrier. It affords additional levels of moisture protection and air infiltration resistance at a modest cost increase without limiting aesthetic design choices. Criteria are in place that measure the performance of these systems and demonstrate that they exceed the performance of traditional moisture protection prescribed in model codes. An essential component for long term durability of EIFS and other exterior wall coverings is sound design and construction detailing.

TABLE 1: EIFS—THE NEXT GENERATION PERFORMANCE SPECIFICATIONS

TABLE 1A—AIR/MOISTURE BARRIER PERFORMANCE

TEST	METHOD	CRITERIA
1. Water Penetration Resistance	AATCC 127(Water Column)	Resist 21.6 in (55 cm) water for 5 hours before and after aging
2. Water Penetration Testing	ASTM E 1233 / ASTM E 331	No water at exterior plane of sheathing. (exterior gypsum, Dens-Glass Gold, plywood, OSB) after 10 cycles @ 80% design load and 75 minutes water spray at 6.24 psf (299 Pa) differential
3. Water Resistance Testing	ASTM D 2247	Absence of deleterious effects after 14 day exposure
4. Water Vapor Transmission	ASTM E 96Method B (Water Method)	Measure
5. Air Leakage	ASTM E 283	<0.06 cfm/ft² (0.305 L/s·m²)
6. Structural Integrity	ASTM E 330	2 inches (51 mm) water pressure (positive & negative) for 1 hour.
7. Dry Tensile Strength	ASTM D 882	20 lbs/in (3503 N/m) minimum before and after aging
8. Pliability	ASTM D 522	No cracking or delamination using 1/8" (3 mm) mandrel at 14°F (-10°C) before and after aging
9. Surface Burning	ASTM E 84	Flame Spread: <25 Smoke Developed: <450
10. Tensile Adhesion	ASTM C 297	>15 psi (103 kPa)

TABLE 1B—EIFS WEATHER RESISTANCE AND DURABILITY PERFORMANCE

TEST	METHOD	CRITERIA
1. Accelerated Weathering	ASTM G-23	No deleterious effects at 2000 hours when viewed under 5x magnification
	ASTM G-53	No deleterious effects at 2000 hours when viewed under 5x magnification
2. Freeze/Thaw Resistance	EIMA 101.01 (Modified ASTM C-67)	No deleterious effects at 60 cycles
3. Water Penetration	EIMA 101.02 (Modified ASTM E 331)	No water penetration beyond the plane of the base coat/EPS board interface after 15 minutes at 6.24 psf (299 Pa) or 20% of design wind pressure, whichever is greater
4. Drainage Efficiency	EIMA 200.02	90% minimum
5. Tensile Adhesion	EIMA 101.03 (modified ASTM C-297)	No failure in the adhesive, base coat, or finish coat. Minimum 5 psi (34 kPa) tensile strength before/after accelerated weathering and freeze/thaw exposure
6. Water Resistance	ASTM D-2247	No deleterious effects* at 14 day exposure
7. Salt Spray	ASTM B-117	No deleterious effects* at 300 hours
8. Abrasion Resistance	ASTM D-968	No cracking or loss of film integrity at 528 quarts (500 L) of sand
9. Mildew Resistance	ASTM D-3273	No growth supported during 28 day exposure period

**No deleterious effects: no cracking, checking, crazing, erosion, rusting, blistering, peeling or delamination*

TABLE 1C—EIFS COMPONENT PERFORMANCE

TEST	METHOD	CRITERIA
1. Alkali Resistance of Reinforcing Mesh	EIMA 105.01	Greater than 120 pli (21 dN/cm) retained tensile strength
2. Physical properties and Requirements for EPS Board	ASTM C-578	Refer to EIMA Guideline Specification for Expanded Polystyrene (EPS) Insulation Board
3. Requirements for Rigid PVC Accessories	ASTM D-1784	Meets cell classification 13244C

TABLE 1D—EIFS AND AIR/MOISTURE BARRIER FIRE PERFORMANCE

TEST	METHOD	CRITERIA
1. Fire Endurance	ASTM E119	Maintain fire resistance of existing rated assembly
2. Intermediate Scale Multi-Story Fire Test	UBC Standard 26-4 or 26-9	1. Resistance to vertical spread of flame within the core of the panel from one story to the next
		2. Resistance to flame propagation over the exterior surface
		3. Resistance to vertical spread of flame over the interior surface from one story to the next
		4. Resistance to significant lateral spread of flame from the compartment of the fire origin to adjacent spaces
3. Radiant Heat Ignition	1996 National Building Code, Section 1406.0 (NFPA 268)	No ignition @ 20 minutes
	1997 Standard Building Code, Section 2603.4.7 (NFPA 268)	No ignition @ 20 minutes

TABLE 1E—COMPONENT FIRE PERFORMANCE

TEST	METHOD	CRITERIA
Surface Burning	ASTM E 84	Insulation board and reinforced coating system shall each have a flame spread of 25 or less, and smoke developed of 450 or less

TABLE 1F—IMPACT RESISTANCE PERFORMANCE

TEST	METHOD	CRITERIA
1. Impact Resistance	EIMA 101.86	Level 1: 25-49 in-lbs (2.83-5.54 J)
		Level 2: 50-89 in-lbs (5.65-10.1 J)
		Level 3: 90-150 in-lbs (10.2-17 J)
		Level 4: >150 in-lbs (>17 J)

TABLE 1G—STRUCTURAL PERFORMANCE TEST

TEST	METHOD	CRITERIA
1. Wind Load	ASTM E-330	Withstand negative and positive wind loads required by prevailing building code

Advertising supplement provided by Sto Corp.

NOTES

1. EIMA, EIFS Industry Members Association. This acronym for the EIFS industry trade association stood for Exterior Insulation Manufacturers Association in 1981.

2. International Building Code, (Falls Church: International Code Council, 2002), pp. 627—630.

3. Bosack, Edward J. III, and Burnett, Eric F.P., "The Use of Housewrap in Walls: Installation, Performance and Implications," Research Series Report NO. 59, (University Park: Pennsylvania Housing Research Center, 1998), pp. 14—20, 41—42.

4. "Southern Building Code Congress International Public Safety Testing and Evaluation Services, Inc. Evaluation Guide 119, Evaluation Guide on Floor, Wall, and Roof Systems (Testing for Moisture Protection Barriers)," (Birmingham: Southern Building Code Congress International Public Safety Testing and Evaluation Services, Inc., 1995), pp. 1--2.

5. "International Conference of Building Officials Evaluation Services, Inc. Acceptance Criteria 24, Acceptance Criteria for Exterior Insulation and Finish Systems,", (Whittier: International Conference of Building Officials Evaluation Services, Inc., 1999), pp. 5-6.

6. Kubal, Michael, T., Waterproofing the Building Envelope, (McGraw-Hill, Inc., 1993), pp.4.

7. "American Society of Testing and Materials C 1382, Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish Systems (EIFS) Joints," (West Conshohocken: American Society of Testing and Materials, 1997).

LEARNING OBJECTIVES

- Compare traditional EIFS to EIFS/the nextgeneration.
- Describe the main drawback of EIFS/with traditional moisture protection
- Identify construction detailing to avoid water intrusion problems in EIFS.

INSTRUCTIONS:

Refer to the learning objectives above. Complete the questions below. Then answer test questions and fill out the reporting form on page 228 and submit it or use the Continuing Education self report form on *Record's* web site - www.architecturalrecord.com - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:

Q: 1. Class PB EIFS does not contain which of these?
A: a. insulation board; b. fluid applied membrane; c. reinforcing mesh; d. base and finish coat

Q: 2. What is the primary purpose of an evaluation report?
A: a. It verifies that a system is equivalent to the construction materials/methods of the code.; b. It verifies that a system or product has passed a performance test.; c. It verifies the durability of a system or product.; d. It verifies the structural and fire performance of a system or product.

Q: 3. What is a limitation of traditional EIFS?
A: a. They did not typically incorporate moisture protection materials behind the EIFS on the substrate.; b. They did not use a fastening device.; c. The heated up to dangerous temperatures.; d. They were subject to cracking like conventional stucco.

Q: 4. Which is not an important construction detail or design criteria for EIFS?
A: a. Control joints for expansion and contraction like stucco or masonry veneer.; b. Deflection from wind load.; c. Light reflection.; d. Joint design for drainage to the exterior.

Q: 5. Which is true of EIFS/the next generation?
A: a. It requires mechanical fasteners.; b. It limits wind load resistance.; c. It incorporates a moisture protection on the substrate.; d. It is used primarily below grade.

Q: 6. What percent of water intrusion problems occur within one percent of the building exterior?
A: a. 90%; b. 80%, c. 50%; d. 40%

Q: 7. Which is true of traditional EIFS?
A: a. It does not require adhesive or mechanical fasteners to attach it to the substrate.; b. It is polymer based.; c. It is difficult to install.; d. It is used primarily below grade.

Q: 8. What are the advantages of a fluid applied membrane?
A: a. It flutters in the wind to allow air into the system.; b. It accelerates thermal bridging.; c. Its seams are lapped to prevent moisture penetration.; d. It is bonded to the substrate to prevent tears.

Q: 9. Which performance criteria is required for EIFS/the next generation?
A: a. The wall must be waterproof before the EIFS wall covering is put in place.; b. The wall must be resistant to air infiltration before the the EIFS wall covering is put in place.; c. The fluid applied membrane must be resistant to the affects of UV aging.; d. All of the above.

Q: 10. The specification for minimum drainage efficiency of EIFS/the next generation is which?
A: a. 60%; b. 70%; c. 90%; d. 100%

sto

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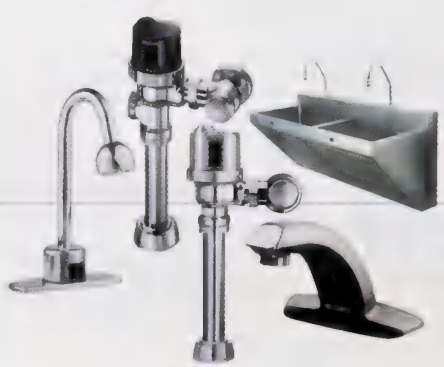
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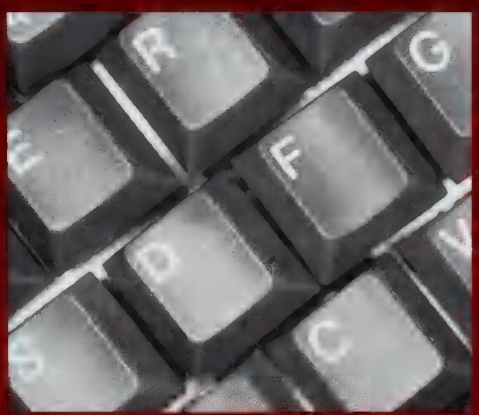
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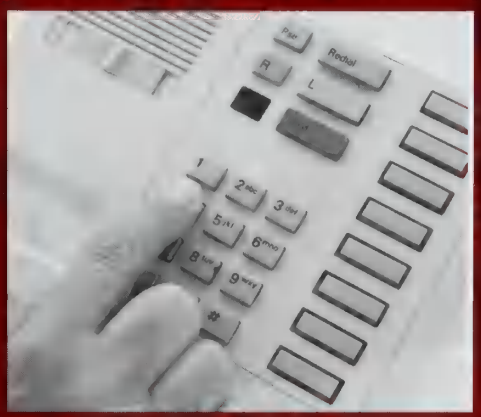
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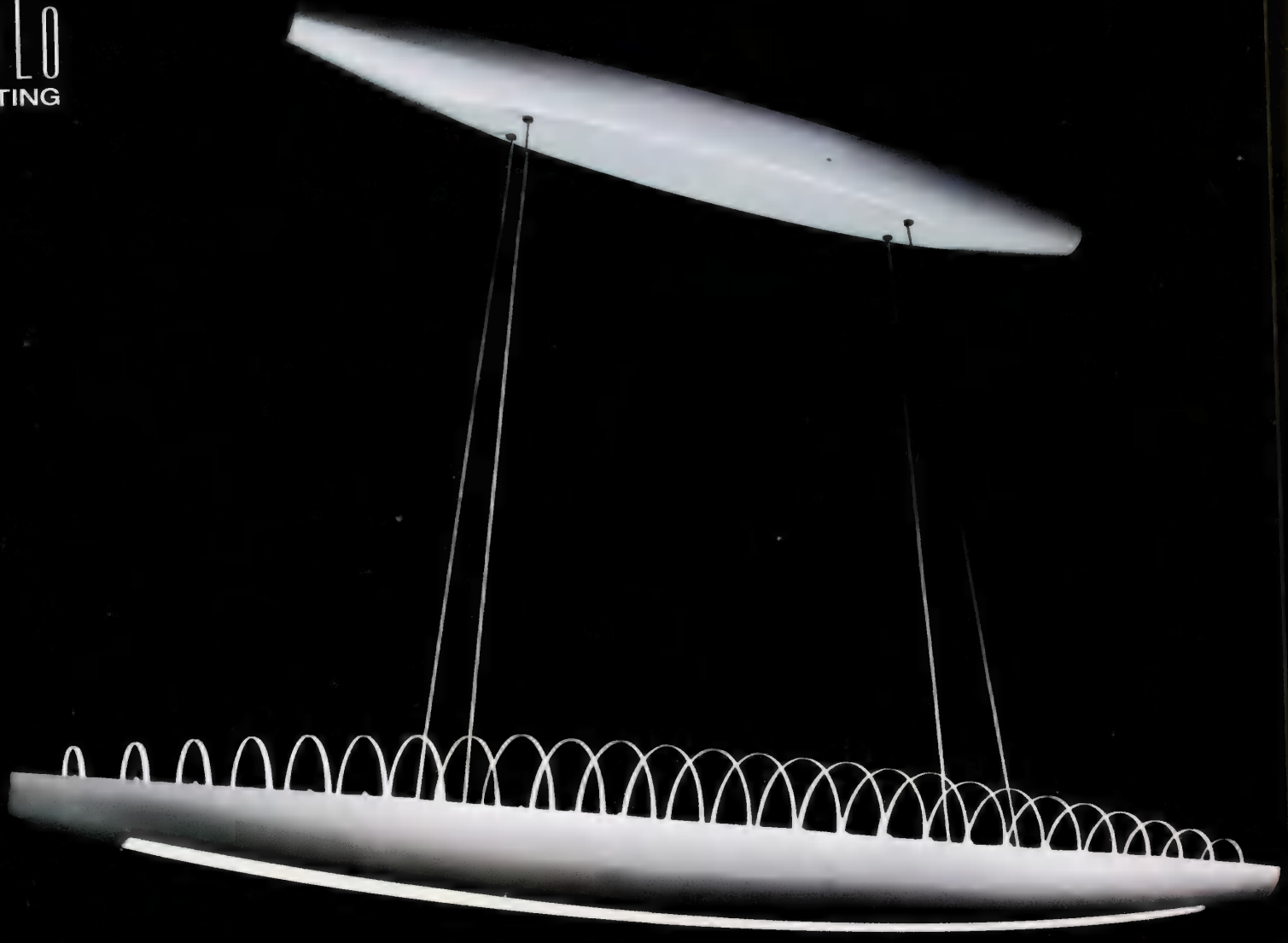
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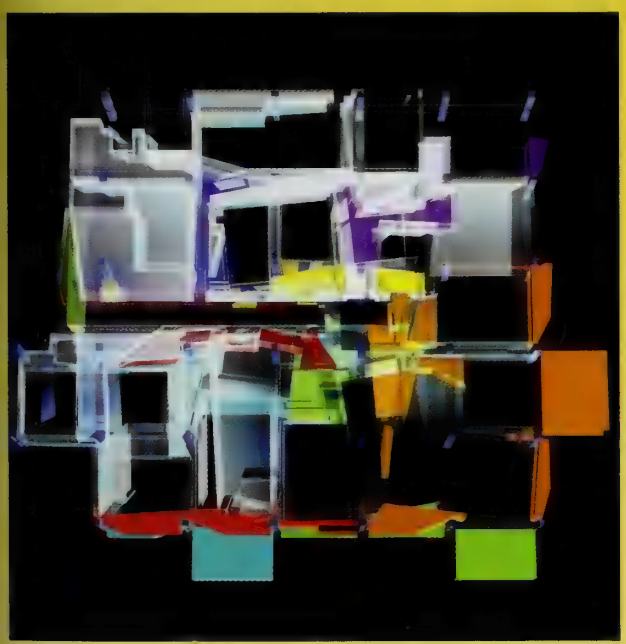
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LIGHTING

Inspired by a student Web site, a collage of light transforms a Paris campus



"If we all did the things we are capable of doing, we would literally astound ourselves," wrote Thomas Alva Edison, the father of electric light. This inspiring maxim—to harness our collective talent and creativity—is advice we can all take to heart, particularly in light of today's challenging global outlook. One peer group remains primed to capture such promise held within the clean slate: college students. Granted, they can be a notoriously contrarian bunch (you remember campus sit-ins, don't you?), but fertile experimentation and discourse often yields creative solutions in the classroom and in the "real-life" world beyond.

Outside Paris, a recently renovated university building is dedicated to a cross-pollination of creative disciplines. Students of music, dance, film, theater, photography, and graphic design pursue a mutual passion for making art. When asked to transform the school's sterile '70s building into a vibrant center for arts education, architects Bernard Dufournet and Jacques Moussafir were inspired by a landscape created by the students themselves: the virtual world of the school's Web site (www-artweb.univ-paris8.fr). Taking their cue from the movement and color dancing across the computer screen, the architects decided to literally break out of the box: The staid rectangular footprint of the building has been freed by sun-washed classrooms cantilevered out into the landscape. And a layering of colored light patterned after the Web site's hues wraps the corridors and classrooms like a three-dimensional collage (the breathtaking rendering for the lighting plan is at left).

For design professionals or students discouraged by the slow ebb of a current project, perhaps another illuminating Edison remark (in today's parlance, a sound bite) is apt: "I speak without exaggeration when I say I have constructed 3,000 different theories in connection with the electric light, yet in only two cases did my experiments prove the truth of my theory." Rare is the appearance of such genius, of course, but perserverence at the drafting table or PC can bring sustained accomplishment. Go ahead, astound yourself. *William Weathersby, Jr.*

191 Creative uses

195 Universal CityWalk, Orlando
Sussman/Prejza & Company; Kaplan Partners Architectural Lighting; Lightswitch

202 University of Saint-Denis, Paris
Dufournet and Moussafir

208 Technology: A fixture for the next century

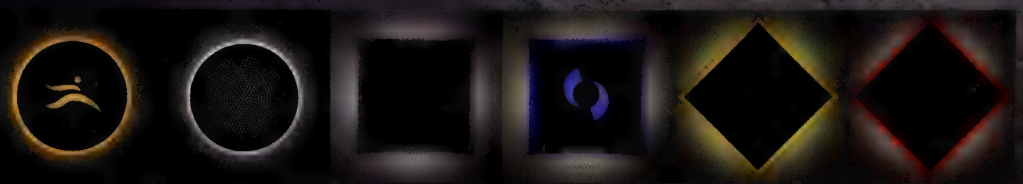
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Creative Uses







For the RECORD: A house that appeared in this magazine in 1969 returns in a new light

Built in 1969 for the National Home Builders Association Convention, the Steelwood House in Houston has shown remarkable longevity. It is one of three townhouses designed by Wilson, Morris, Crain & Anderson Architects (now Morris Architects)—which also designed the Astrodome, the convention site—that were influenced by domestic Modernist milestones such as Mies van der Rohe's Farnsworth House and Philip Johnson's Glass House. The structures were framed entirely in steel and built southwest of downtown to demonstrate the use of steel in residential construction. Appearing as RECORD HOUSES in May 1969, they were called "unusually effective and elegant examples of the spaciousness and livability that can be achieved on a small urban lot." The Houston chapter of the AIA bestowed on the project its 25-Year Award in 1998.

Three decades later, architect and lighting consultant Michael John Smith, AIA, IALD, is completing a careful restoration of Steelwood as his own residence. Working with life partner Malcolm McKinney Perry, Smith has employed lighting to enhance the local landmark.

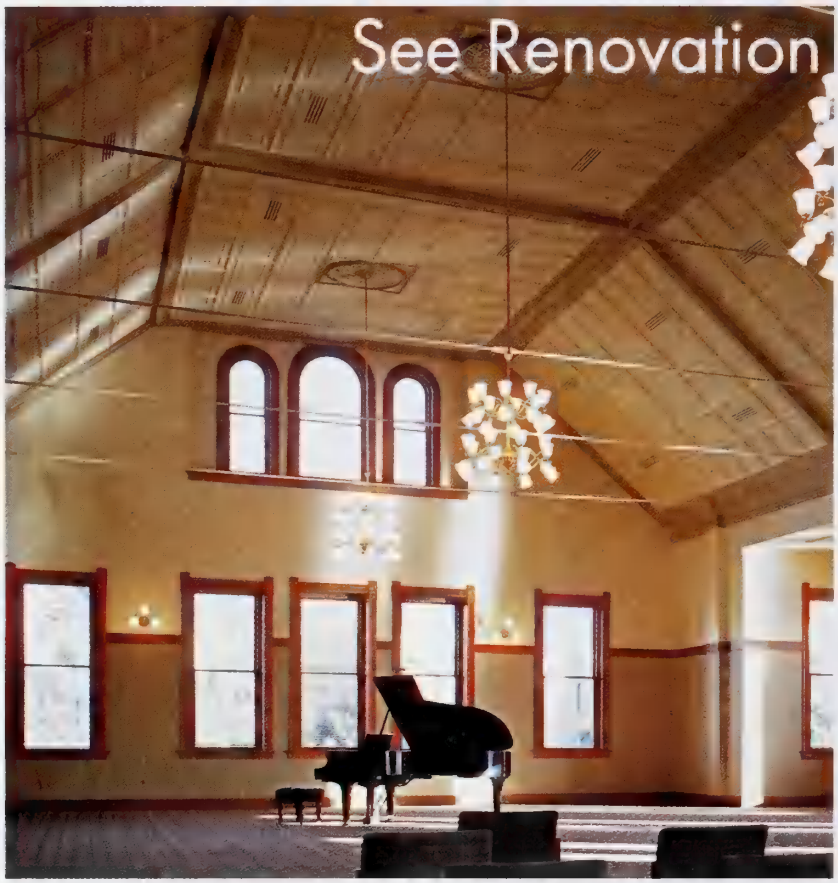
"Houston is not a city that has generally valued the Modernist residential aesthetic," Smith says. "Buildings like this are torn down or remodeled as ersatz Mediterranean villas all the time. We respect the house's integrity, and the lighting aids in revealing its special character."

Illumination circa '69 was bare bones: floodlights blasted the facade, while table lamps dimly illuminated most rooms. Today, Smith's multilayered lighting plan incorporates (clockwise from above left) a light sculpture as a dining room canopy near a colored light wall; blue dichroic lenses spotlighting a credenza; and a Zen garden lit by 13 roof-mounted AR111 spots.

For more lighting details, plus RECORD's 1969 article on the house, visit www.architecturalrecord.com.

William Weathersby, Jr.

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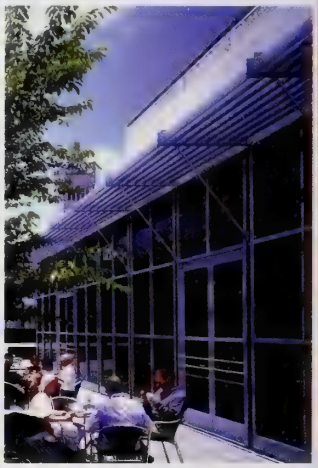
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Since the January 2001 issue, every month's Building Type Study features a wealth of additional projects on the web.

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Flashy graphics, signage, and lighting work in concert to enliven an entertainment promenade in Florida

by Catherine McHugh

One word has become synonymous with the American theme park: Orlando. Among the Florida city's most prominent vacation destinations is Universal Orlando, which encompasses both the Universal Studios and the Islands of Adventure. Universal recently broadened its reach—and consolidated its sprawling site—with the addition of CityWalk, a new gateway for its pair of parks. CityWalk also stands alone as its own entertainment destination for tourists and locals alike. The 30-acre complex features outdoor stages and common areas offering concerts, arts festivals, cooking demonstrations, celebrity appearances, street performances, and other activities to draw patrons around the clock. Set beside a man-made lagoon, a new plaza is framed by an array of restaurants, nightclubs, shops, a cineplex, and live entertainment venues.

While an earlier CityWalk project at Universal's Los Angeles location (with a master plan by Jerde Partnership) was an idealized, small-scale collage of that city's pop-cultural landscape, the Orlando promenade conveys a more layered, regionally inspired vernacular style dubbed by the design team "tropical urbanism." Working with an in-house team led by Universal vice president of design Richard Orne, the multidisciplinary design firm Sussman/Prejza & Company has created a series of streetscape elements—beautifully articulated totems, towers, and signs—that define and unify the public promenade.

Three distinctive, metal-clad towers form the landmarks of CityWalk's skyline, enhanced by a network of satellite totems: seven within the plaza, 13 at the waterfront, and nine for the entryway. "The streetscape elements play a central role within CityWalk's urban design," says Sussman/Prejza principal architect and project designer John Johnston. "The vertical elements provide armatures for lighting, sound, shading, and graphic iconography. At the same time, they create a coherent civic presence."

To ensure that all of CityWalk comes alive at night, the architects joined with lighting designers Joe Kaplan of Kaplan Partners Architectural Lighting and Norm Schwab of Lightswitch. Since Schwab

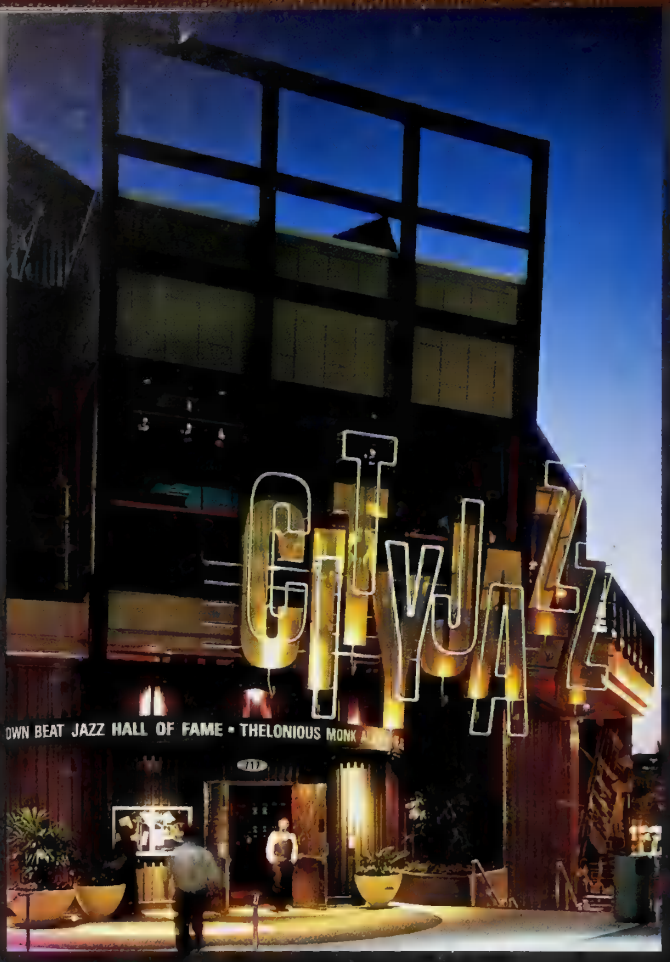
Catherine McHugh, a freelance writer and editor based in New York City, has specialized in architectural and entertainment lighting for 11 years.

Project: *Universal CityWalk, Orlando, Fla.*
Architect/designer: *Sussman/Prejza & Co.—John Johnston, project architect; Angela Lam, Julius Bhang, Paula Loh, Paul Nagakura, Paul Novacek, Joy Sih, Jeeun Kim, Robert Chacko, John Colter, project team*
Architect of record: *HOK Studio E, Orlando (base buildings)*
Lighting designers: *Kaplan Partners Architectural Lighting—Joe Kaplan, Chris Coe; Lightswitch (theatrical lighting)—Norm Schwab, principal*
In-house designer: *Universal Creative/CityWalk Orlando*

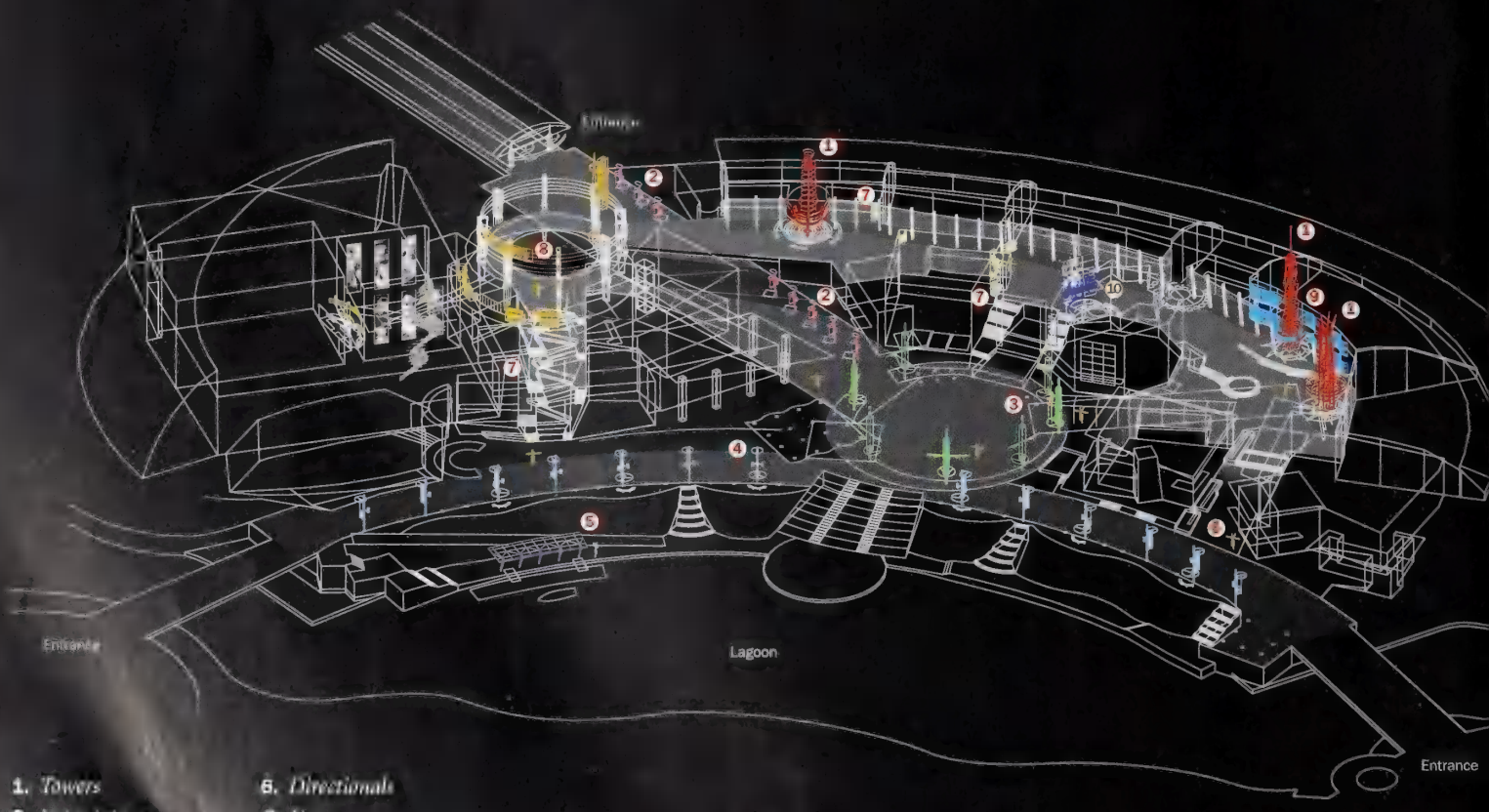




The Universal CityWalk in Orlando (right) connects two theme parks. Neon signage and lighted towers aid wayfinding (bottom).

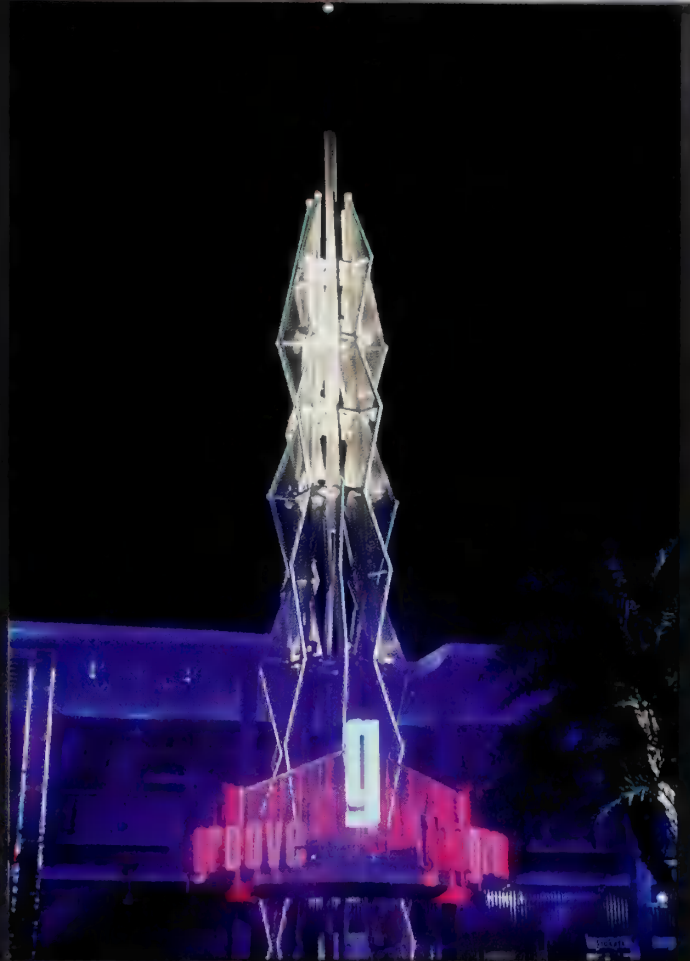




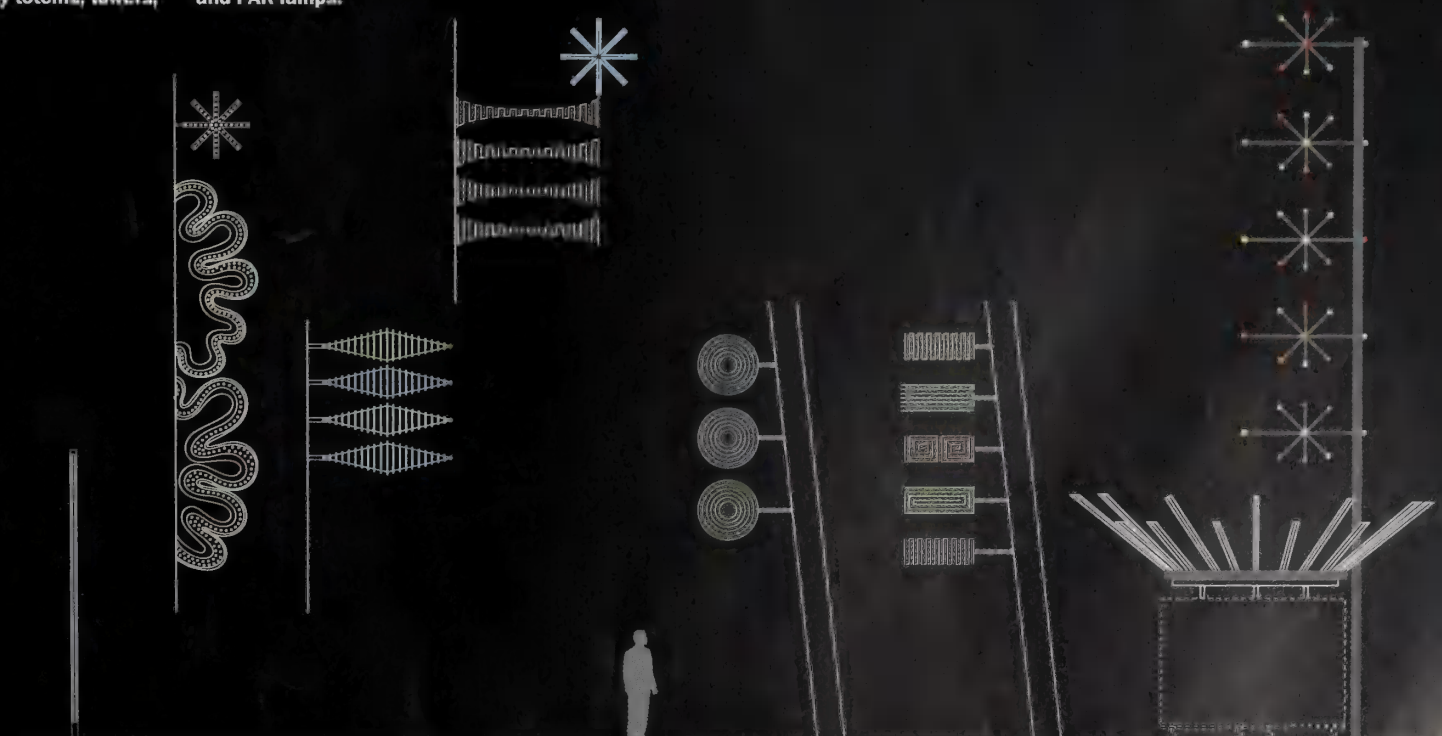


1. *Towers*
2. *Entry totems*
3. *Plaza totems*
4. *Waterfront totems*
5. *Boat landing*
6. *Directionals*
7. *Neon*
8. *Cineplex*
9. *Dance club*
10. *Jazz club*



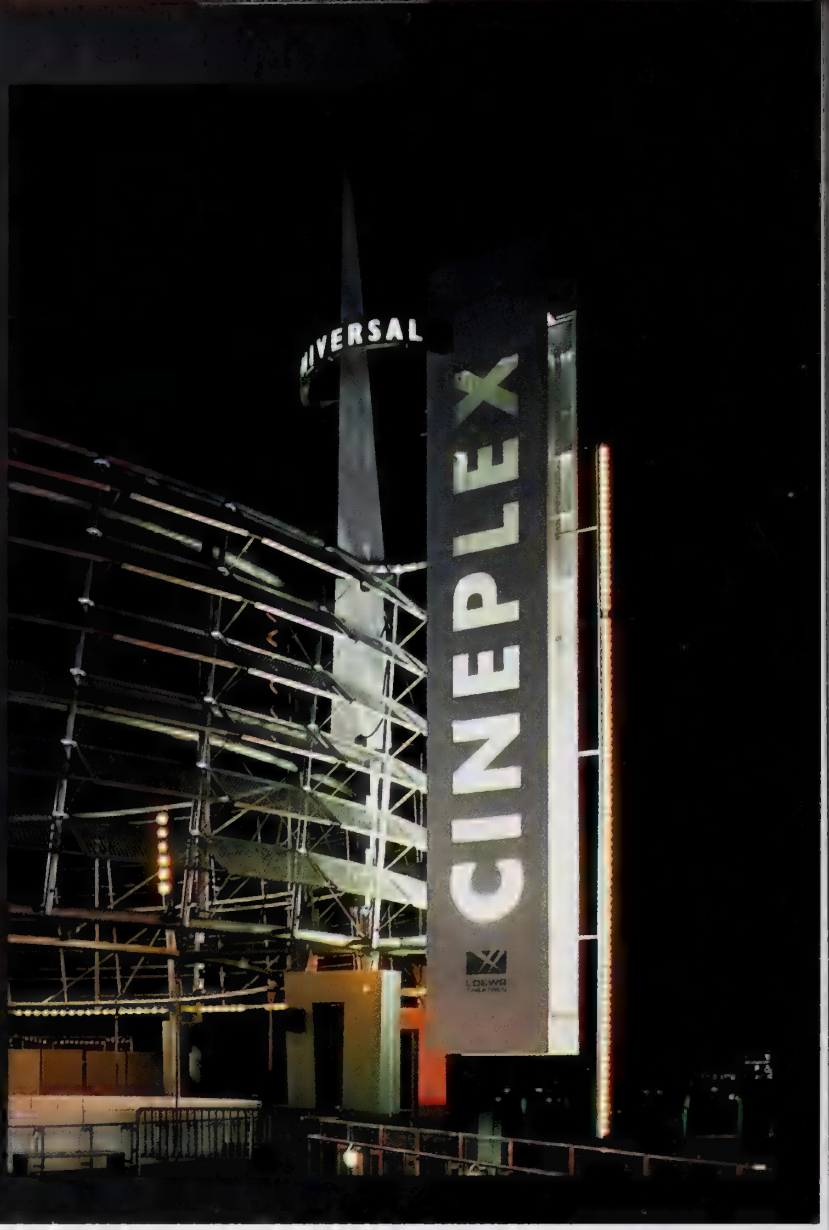


An axonometric (facing page, bottom) conveys the layered composition of graphic and lighting elements. Entertainment venues employ totems, towers, and signs (photos facing page and above; illustration below) that feature a range of neon, fiber optics, automated luminaires, and PAR lamps.



NEON STREET ENHANCEMENT





Custom-designed signs for each tenant lend exuberance to the streetscape (above). A towering exterior sign marks the entrance to the cineplex (right).

was overseeing the project's theatrical lighting components, he and Johnston collaborated on an animation program to give the vertical structures a kinetic edge. The implied motions of the animated lighting, inspired by and synchronized to the various musical beats emanating from the clubs—from salsa to jazz—help connect the visual and aural landscapes. The lighting provides a counterpoint to the forms of the totems, which in turn serve as signposts cuing CityWalk's offerings.

"We wanted to engage the viewer, evoking an emotional response through color, motion, and hyper three-dimensionality," Kaplan says. Because theme park patrons arrive already primed for an entertaining experience, "our goal was to try to make magic with basic lighting parts used creatively."

Each tower (ranging from 65 to 100 feet tall) or totem (at 20 to 45 feet) functions as a kind of oversize filament within which architectural and entertainment lighting styles merge. Beyond providing wayfinding cues, the vertical elements in themselves act as entertaining stops along the boulevard.

"Lighting supports different looks for the vertical structures from day to night," Johnston says. "That ambiguity of form is at the heart of the design." In sunlight, the *Metropolis*-like towers appear as sculptural forms, while at night they become objects reflecting animated, colored light. Each skeletal tower features fins, orbital rings, and a distinctive apex.

The designers employed a low-tech approach for animated "lantern" effects within the more diminutive plaza totems. Painted metallic silver on the outside, each perforated metal cylinder is coated inside with one of the site's signature colors: green, orange, blue, or white. While the hues can be glimpsed during the day, at night an internal wash illuminates each totem for a strong glow. Colored rays spill out to graze the cladding and patrons below. Animated lighting envelops both totems and towers, with lighting effects choreographed to crescendo on the hour.

The cast fixtures stand up to Florida's fierce humidity. The designers also specified inexpensive, stock gear that is easily replaced by park maintenance staff. Inspired by the district's clubs and cabarets, additional neon along the main corridor and side avenues supplements individual tenant signage. Like CityWalk itself, the neon elements suggest a hybrid of the streetscape's civic function and the eye-catching language of commerce. ■

Sources

Promenade and plaza lighting: *ETC/Irideon; High End System; LTM; Sterner; Stonco*

Tower lighting: *Stonco*

Fiber optics: *SuperVision*

Lighting controls, dimmers: *ETC*

Fabricators: *Architectural Graphics; Carlson & Co.; ISD*

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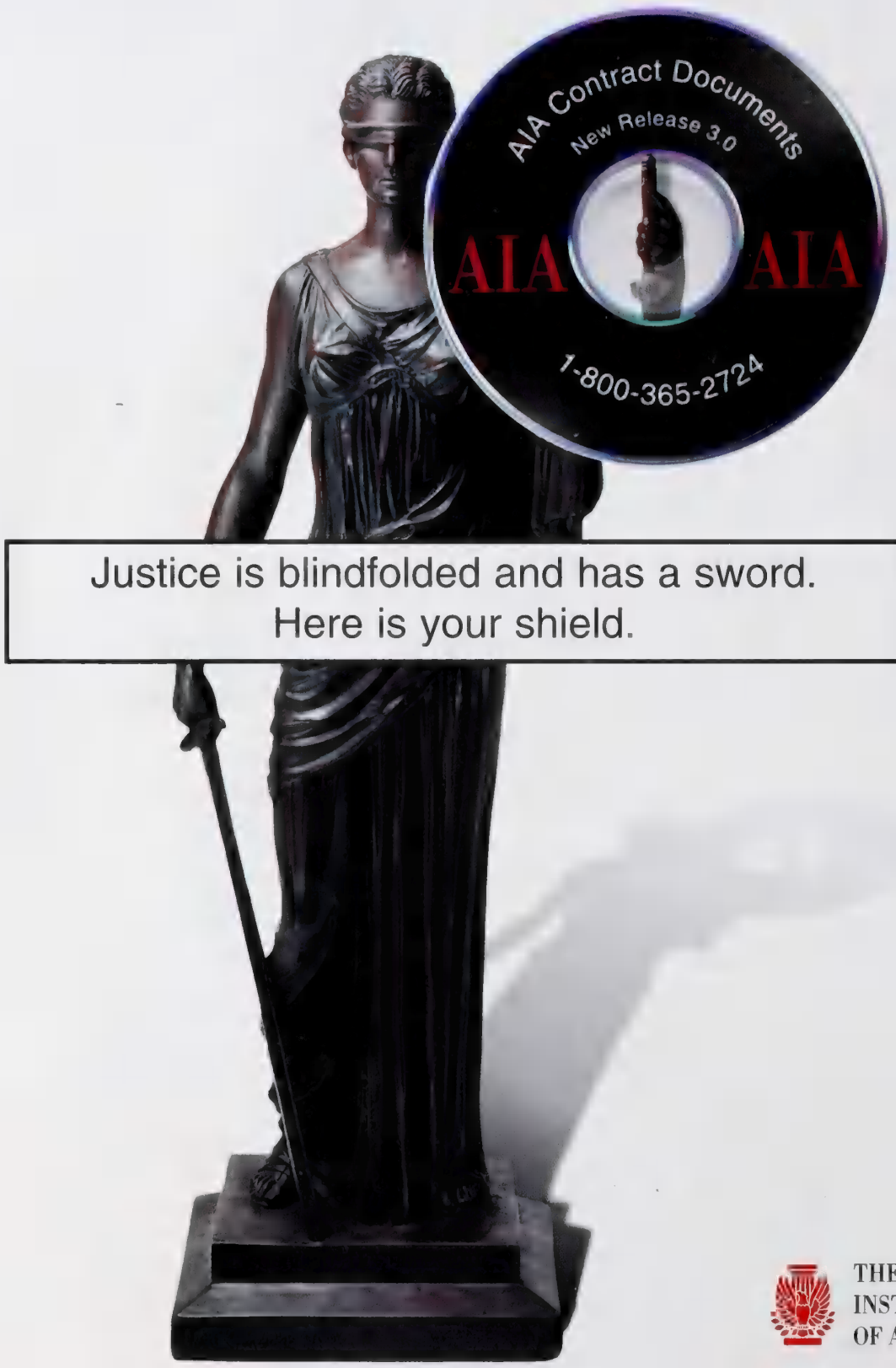


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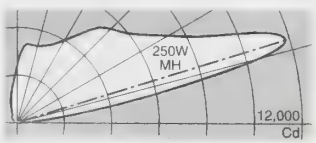


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MICHAEL DEER-IN PHOTOGRAPHY

Cantilevered classrooms and color fields of light bring a French university campus into focus

by Claire Downey

The University of Saint-Denis is not an attractive campus. Most buildings date to the 1970s when the school had a reputation for spawning radical French intellectuals. Located in what the French call a "sensitive" urban zone, just north of Paris, classrooms are kept tightly locked and mazelike corridors are covered in graffiti. With an airy new subway station and dormitories now also under construction, however, the university is working hard to improve its image. One successful transformation is the new school for arts research by architects Bernard Dufournet and Jacques Moussafir.

Dufournet and Moussafir won a 1997 university competition with a project that broke free from the rigors of the existing buildings on campus. They wanted to elicit an emotional response and even shake up the students who would inhabit the space. With a budget of $1.5 million (11 million Fr) for 26,910 square feet (2,500 square meters), much of the emotional resonance would come from simple materials enhanced by an elegant juxtaposition of color and lighting. The project consists of studios and classrooms for art, theory, dance, music, film, and photography, as well as administrative offices, all set within the first two floors of a three-story building. From the outset, the architects realized that the allotted area, which once housed a library, was too small to accommodate such a diverse program without sacrificing circulation. When a cinema and a dance studio were later added to the program, logic dictated much more circulation and congregating space. The perimeter was also problematic: Floors were very deep, with only two exterior walls pierced by daylight, but altering the two corner facades was not part of the university mandate.

Breaking free of the program, the architects proposed stretching beyond the structure's elevations. Windows of varied sizes now protrude from a new steel facade, with rooms cantilevered out over the sloping site to gain space. The new facades brought a greater transparency to the

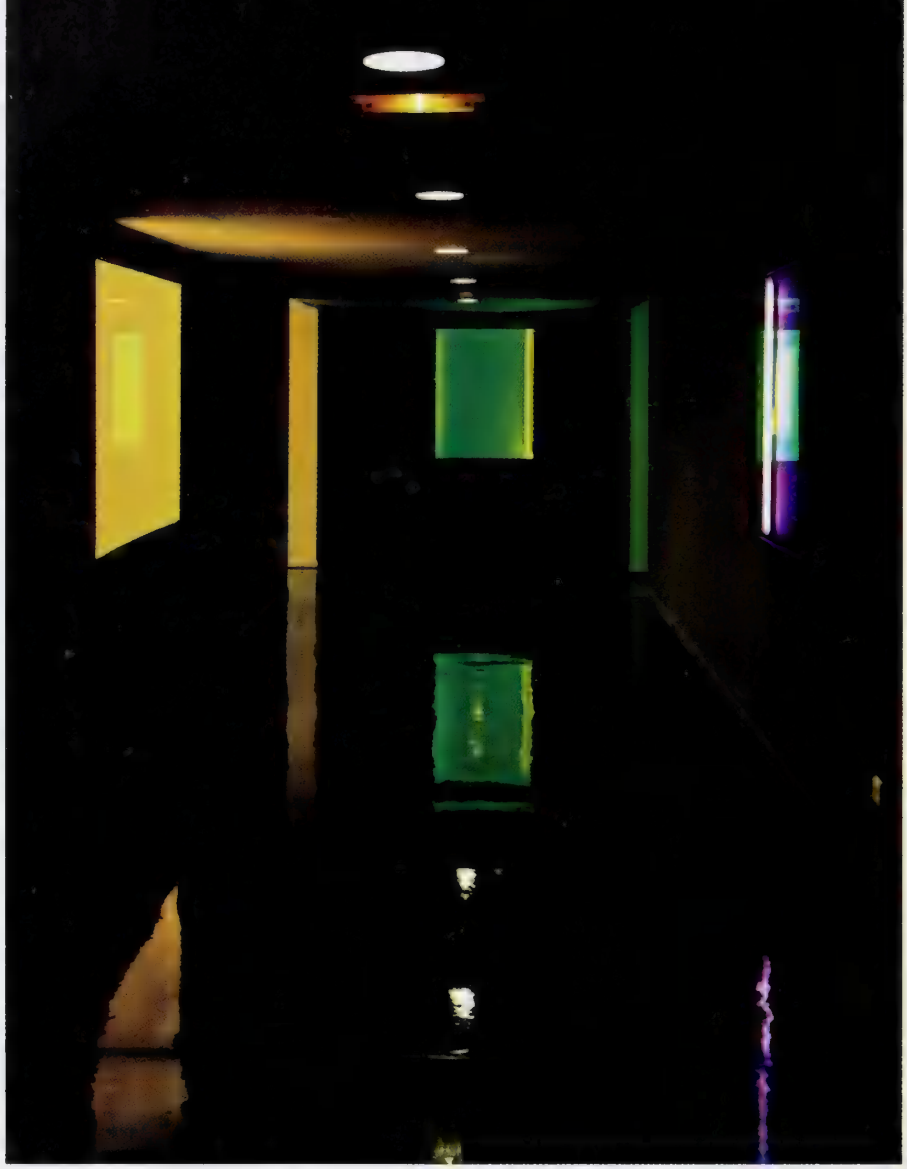
Claire Downey, ARCHITECTURAL RECORD's contributing editor based in Paris, frequently writes about architecture and the arts.

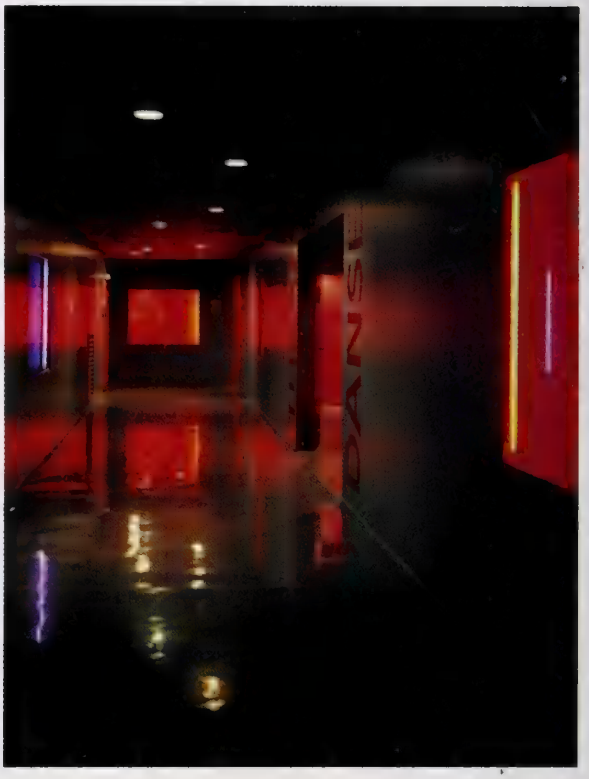
Project: *University of Saint-Denis (U.F.R. Arts Université Paris 8), Paris*
Architects, lighting designers: *Bernard Dufournet and Jacques Moussafir (Moussafir Architects Associates), principal architects; Shinwon Huang, Christian Felix, Claire Petetin, project team*
Consultants: *AGIRS (electrical); ICR Champagne (HVAC, plumbing); SNEDF (facades); Jean-Paul Lamoureux (acoustics); BET; Qualiconsult; Milaprat*



Renovating a 1970s university arts building outside Paris that was dark and uninviting, architects Dufournet and Moussafir thrust students into the daylight via cantilevered classrooms.

At night, the facade comes alive with color fields of light casting an ethereal glow.





Fitted with color filters, compact fluorescents illuminate interior light boxes (left and below). As night falls, a cantilevered classroom lit with standard fluorescents is a beacon within the campus landscape (bottom).

building, telegraphing the role of each department from the inside out.

What Moussafir calls "passage and window" became the generating idea of the redesign. By skewing the large rectangular classes within the existing column grid, thick walls were created into which brightly colored light boxes were inserted. At the same time, oddly shaped voids off the central corridor became entry vestibules for each discipline.

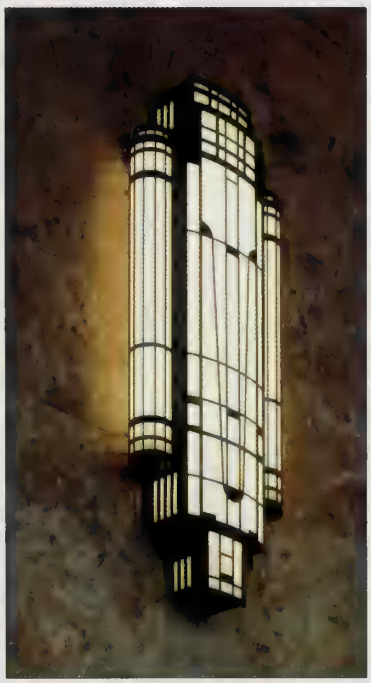
A specific color, used within both window/light box and vestibule, identifies each discipline, such as red for the dance department, green for music, and so on. In between, central hallways are painted a dark gray and illuminated by conservative runs of ceiling-recessed fluorescent spotlights and accent fixtures, which cast enough ambient light for navigating the halls without competing with the colored planes.

When contemplating a color palette, the architects turned to the Web site created by the school's students. The design team wanted to use acid colors like those a computer generates—hues they thought would work well with electric light. Implementing this palette architecturally called for paint, compact fluorescents, and colored filters. Interior window boxes vary in depth and form, but each has two glass faces and two interior compact fluorescent tubes—one set horizontally, one vertically. Transparent glass placed on the corridor-facing side meets fire regulations. On the classroom-facing side, the architects specified colored film sandwiched between two layers of glass. To achieve the desired colors, the team special-ordered the glazing system, which was an extra, but worthwhile, expense, Moussafir asserts. Glass on the classroom side is lightly

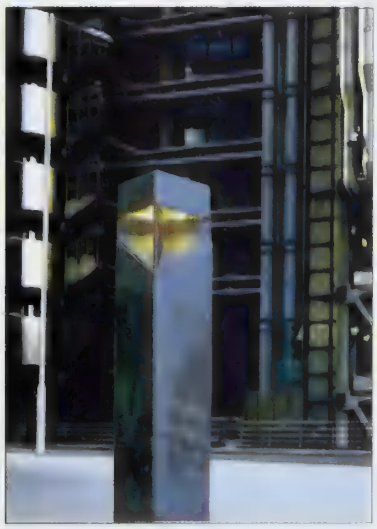


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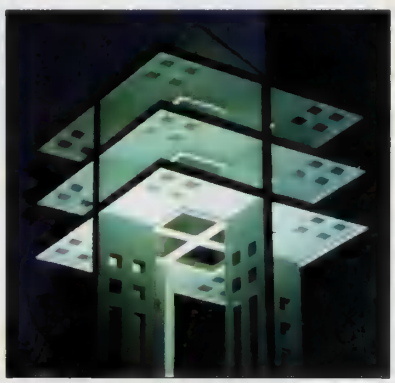














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Painted walls and color-filtered compact fluorescents let each arts department show its true colors.

(Clockwise from above): Red denotes dance, purple calls out graphic design, and orange, practice space.



sanded to slightly obscure activities within. The fluorescents are wrapped with inexpensive colored plastic film, the same type used to tint theatrical lights. The interior of each window box is painted to match its corresponding film color. While the tinted compact fluorescents are left on even when classes are not in session, the vibrancy of the monochromatic planes becomes even more striking when backlit by the activated ceiling-mounted standard fluorescents within the classrooms.

Previously, Moussafir, 43, had worked on some of Paris' most prominent projects, for architects as diverse as Henri Gaudin and Dominique Perrault, before joining forces with Dufournet and eventually founding his own firm. Long interested in lighting, he did not consult a lighting engineer for the Saint-Denis university project. Instead, he says he was inspired by artists including James Turrell, an American master working within the medium of colorful lighting installations. Passing from color field to color field within the transformed Saint-Denis arts building, it is easy for students, faculty, and guests to place themselves, if not quite within the realm of art, then certainly inside a very sophisticated computer rendering come to life. ■

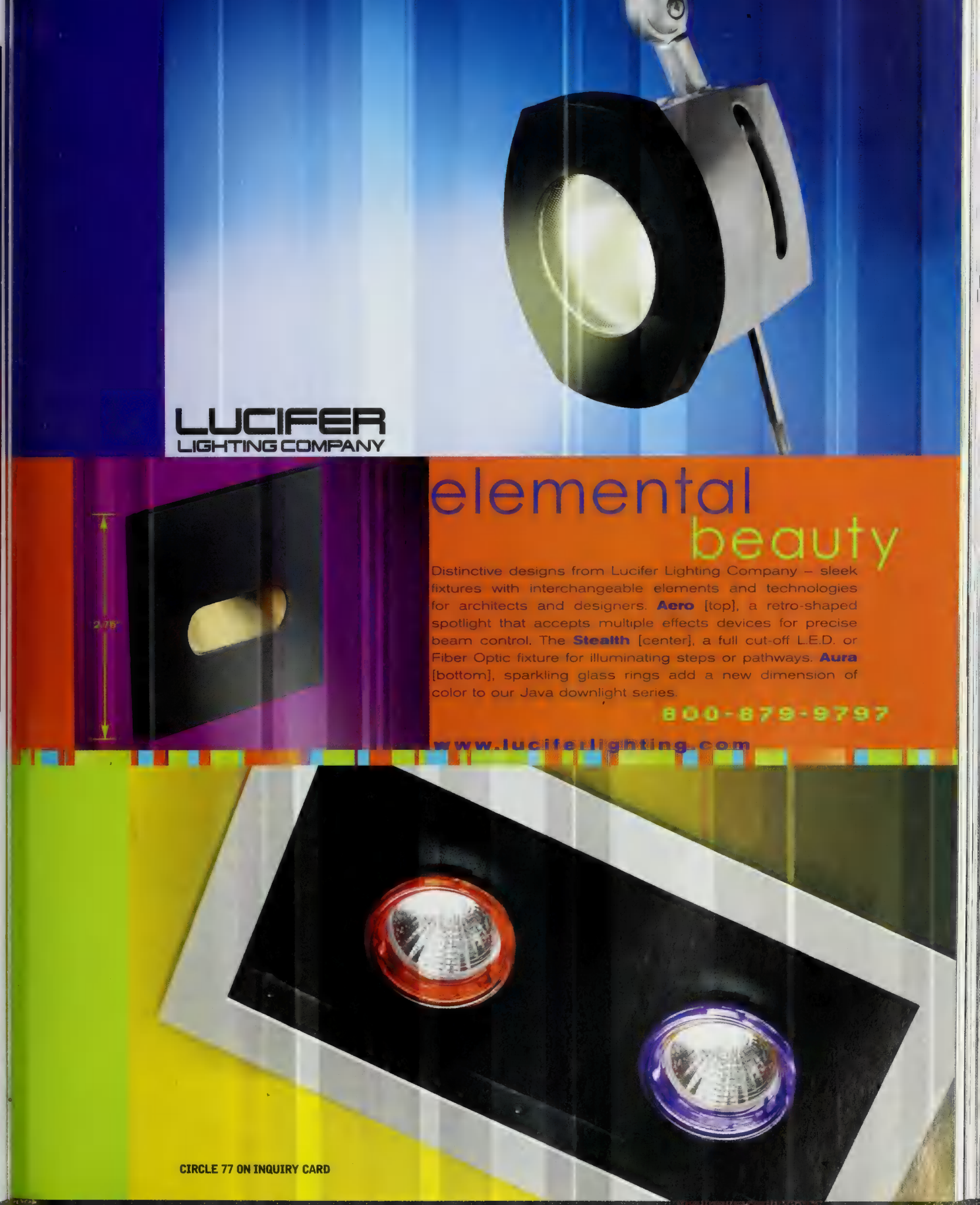
Sources

Compact fluorescents: *Philips*

Color filters: *Lee Color Filters*

Ceiling fluorescents: *RIDI*

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THE DESIGNERS OF AN INGENIOUS NEW FIXTURE SEEM TO HAVE OVERLOOKED NOTHING.

By Lindsay Audin

The Ergolight seems to incorporate every designer's wish-list of energy management and optical control options in one package: variable levels of direct and indirect lighting, occupancy sensing, daylighting, load shedding, remote scheduling, low glare, high efficiency, easy relocation, and simple installation.

The fixture is manufactured by Ledalite, of Vancouver, British Columbia. It is a sleek, 4-foot, pendant-mounted, direct/indirect fixture, with three T8 lamps. The lamps have two separate electronic dimming ballasts, one for the two lamps that produce the fixture's downlight and another for the single lamp that produces its uplight. Each fixture has a built-in infrared occupancy sensor and a daylighting sensor, and each interfaces with a communications system that allows individual user control from PCs as well as a central, Windows-based building management system (BMS). A T5 high-output version will be available later this year.



An Ergolight installation (above). Daylight and occupancy sensors are mounted on the fixture's underside (right).

A single Ergolight is designed to illuminate one typical office cubicle. Light from two of the lamps is reflected downward to illuminate the task area; louvers control downlight-source glare. The third lamp produces uplight that is bounced off the ceiling. Based on Ledalite's data, overall fixture efficiency exceeds 85 percent, with a coefficient of utilization of .52 (at typical 80 percent ceiling/50 percent wall/20 percent floor reflectances and a room cavity ratio of 4.0, common for a cubicle). An 8-foot-by-10-foot space with a 9-foot ceiling height would have an average 48.6-foot candlelight level, bright enough for most offices.

Ledalite has worked out many control options for Ergolight. For example, an individual can dim the fixture over his or her desk using a PC to communicate with the BMS computer over the building's existing local-area network. After the BMS receives these instructions, it directs the ballasts to dim the fixture using standard data wiring—essentially telephone cable—networked to each fixture. Although occupants can dim the downlighting in the fixture over their desk, they do not have any control over the occupancy or daylight sensors. This is reserved for the building's energy managers.

When sunlight makes a room or cubicle too bright, the daylight sensor instructs the fixture's "brain" to slowly dim all three of the unit's lamps so the room's initial brightness level is maintained, down to 50 percent of the fixture's output. The dimming takes place very gradually. If the room's occupants leave, the occupancy sensors operate in a manner that is similar to the daylight sensors—rather than shutting off the lights in one step, they slowly dim the downlights to five percent. After a space has been unoccupied for an additional time period, the downlights are shut off completely. Gradual dimming prevents lights from going on and off frequently, which is distracting. In one test facility, an additional benefit was noted: A darkened cubicle meant that no one was in. If a room has no PC, a phone call to the BMS computer operator will allow control of the fixtures in that space. Rooms can be equipped with a separate wall-mounted manual dimmer to control lighting levels irrespective of occupant motion or ambient light level.

Major energy savings, reasonable first cost

In one study, Ledalite claimed an 87 percent savings relative to an existing two-lamp, T12, magnetically ballasted, 2-foot-by-4-foot troffer system. While some air-conditioning reduction credit was taken in that calculation, no assumption was made for occupant dimming below standard light levels. A post-installation survey at that same facility found, however, that half the staff used their PC-based control to drop their light levels to less than 50 percent, adding even greater savings. But there is a possible downside: One occupant dropped his light level to only 25 percent and used a desk lamp for task lighting. One hopes it wasn't an incandescent lamp—avoiding that scenario may require also providing occupants with compact fluorescent task lighting.

While every facility is different, early installations in typical offices ranged in cost between $2.80 and $3.60 per square foot, which is comparable to good-quality, 2-foot-by-4-foot troffer setups. That price does not include the central computer (because an existing BMS or PC might suffice) or the cost of LAN connections, as most offices already have a LAN in place.

Watch for more smart fixtures soon

While the Ergolight is presently unique, expect smart fixture manufacturers to copy a lot of its capabilities and to add new ones. Many highly controllable systems will soon be available for lighting and energy management. ■

Lindsay Audin is the president of Energywiz, an energy and technology consulting firm (www.energywiz.com). With this article, we join Mr. Audin in celebrating his 10th anniversary as an ARCHITECTURAL RECORD *columnist.*

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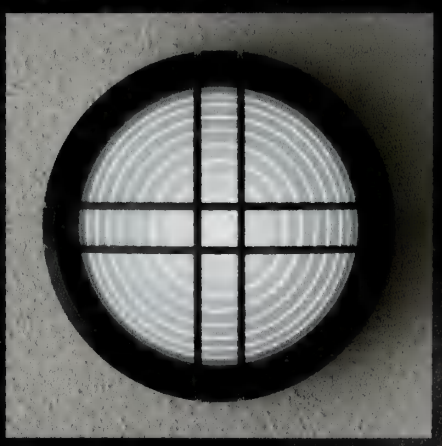
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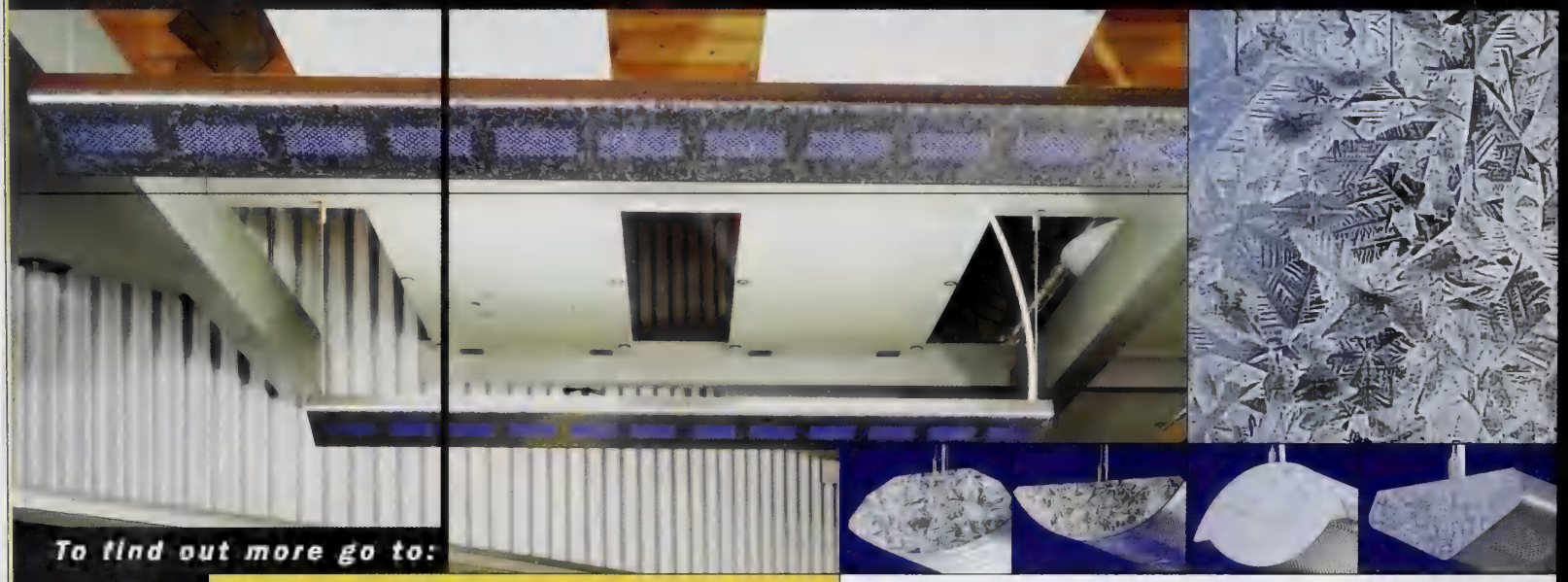
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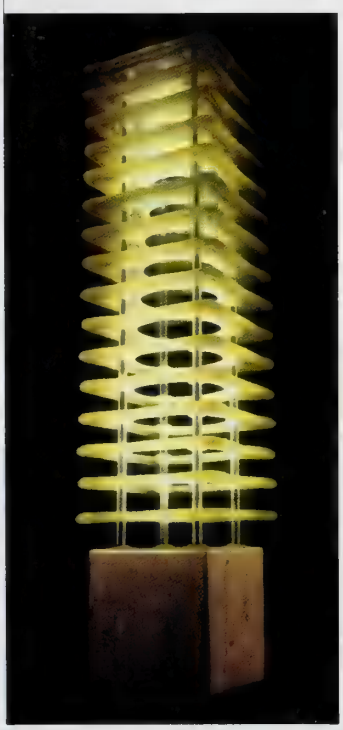


▲ Something about Mary

Every light in Resolute's Glass Lights Collection is blown by hand in Seattle using techniques usually reserved for art glass. The finely detailed Mary pendant is illuminated by a low-voltage MR11 lamp. Mary's transparent glass shade is available in a choice of wheat, steel, clear, and aqua (shown here). The pendant comes in 120 volts, 230 volts, and 277 volts, with a dimmable electronic transformer. 206/343-9323. Resolute, Seattle. **CIRCLE 200**

▼ Northern light

Icelandic designer Olafur Thordarson explains that his new UL 2 lamp "combines the structural concept of a building with a spatiality defined by a light beam." The light features 16 cast-resin slabs that are vertically suspended off a cast-concrete base. Each slab gives off a similar amount of light, due to its interaction with the light source. 212/979-2325. Dingaling Studio, New York City. **CIRCLE 201**







▲ Pulsating pendant

The designers at Amsterdam-based Opera Nuda eloquently describe the A.I.D.A. light as a "pure mechanism with wires functioning as 'blood vessels,' pumping electric energy through the whole corpus." Made of Plexiglass and stainless steel, A.I.D.A. requires 18 five-watt halogen lamps. By switching on an electric motor, the lamp slowly moves from the open to closed position. 0031 20 3300747. Opera Nuda, Amsterdam.

CIRCLE 202



◄ Indirect illumination

The new 8208MH luminaire features the reflector component fixed at 30 degrees. The reflective surface is a spherically domed oval, which gathers more light from the concealed optical system. The light source is a 150-watt G12 T6 ceramic metal halide. Compatible designed poles are available for mounting heights from 16 to 20 feet. 805/684-0533. Bega/USA, Carpinteria, Calif.

CIRCLE 203





◄ Here and Grau

Included in the recent expansion of Atlanta's Domus International Design Center is German lighting manufacturer Tobias Grau's first-ever U.S. showroom. Managed by Tobias Grau and his wife, Franziska, the company was established in Germany in 1984 and has since been presented at Euroluce in Milan and the International Furniture Fair in Cologne. Shown here are the Project X lamp (bottom) and the Saturn 50 lamp (top). Grau has mastered a labor-intensive metal-casting process of sand casting. All metalwork is fabricated at his factory in Germany. Saturn 50 is U.L. listed, Project X is not. 800/432-2713. Domus International Design Center, Atlanta.

CIRCLE 204

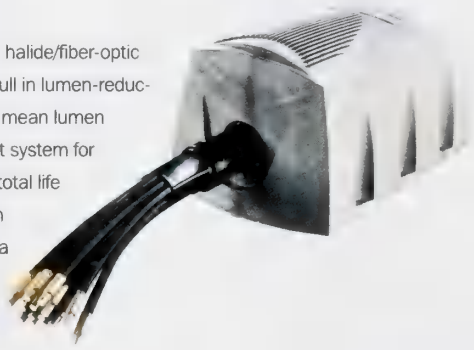
Lighting Briefs

► Ceiling with a view



The OptiView diffuser reflects the sky's image, creating an overhead window effect that helps connect the building's occupant with the outside environment. The diffuser, which features a high-performance fresnel lens material, is available on all Solatube skylight products. 800/966-SOLA. Solatube International, Vista, Calif. **CIRCLE 205**

► Fanless fiber optics



The Imagine 68-watt fanless metal halide/fiber-optic lighting component has no fan to pull in lumen-reducing dust and dirt. The system gives mean lumen levels equal to a standard 150-watt system for less than half the energy for lower total life cycle costs. It combines a Uni-Form pulse-start metal halide lamp with a cool-running electronic power supply. 440/248-3510. Venture Lighting, Solon, Ohio. **CIRCLE 206**



▲ Cherry up the desktop

Cherry Tree Design introduces the L7 Aurora double pendant desk lamp to complement a desk or end table. The lamp, an addition to Cherry Tree's Aurora Collection, features cherry with a natural slate base, double pendants with wood pull and chain, and a variety of facing options. Shown here with a natural Mica shade, the lamp requires one 60-watt bulb per pendant. Also available is the L6 Aurora table lamp, a mixture of cherry and walnut accents. A variety of different facing options are also available for the L6 lamp. 800/634-3268. Cherry Tree Design, Bozeman, Mont. **CIRCLE 207**

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► Colored LEDs

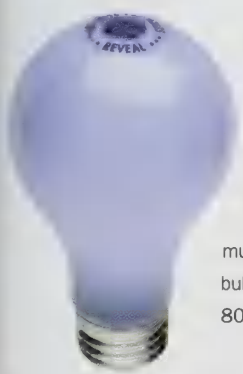


A new family of high-output LED products from GELcore provides colored illumination for architectural, retail, and mood-lighting applications. At less than 8 watts, several products within this family of energy-efficient modules are planned to deliver the equivalent lumen performance of 35-watt filtered halogen lamps. 216/606-6595. GELcore, Valley View, Ohio. **CIRCLE 208**

► Look of silver, strength of iron



Nambé's nontarnishing metal alloy was discovered in 1951. The material contains no silver, lead, or pewter, but has the look and luster of silver and the strength of iron. Nambé has introduced its first line of decorative lighting using this material created by designers Karim Rashid and Brian Lintner. Rashid's Martini lamp (right) fuses metal and wood in the conical base for a distinctive contrast of color and material. Link, from Lintner, is a geometrical abstraction of bamboo represented in a combination of Nambé's special alloy and a choice of warm, dark woods. 505/471-2912. Nambé, Santa Fe, N.Mex. **CIRCLE 209**



◄ Blue mood lighting

Light from GE Lighting's Reveal bulb makes objects appear richer in color and more vivid. Adding the natural earth element, Neodymium, to the glass gives Reveal a distinctive powder-blue color when unlit and allows it to provide a pure, true light by filtering out much of the dulling yellow cast common in ordinary light bulbs. Reveal will be available in 22 different bulb types. 800/GE-LAMPS. GE Lighting, Cleveland. **CIRCLE 210**



▲ On the move

The Mobilé track-lighting system can be easily suspended from any type of ceiling. A three-circuit track accommodates variable switchable combinations of energy-efficient T5 linear fluorescent uplighting with diffused downlighting, and aimable low- or line-voltage accent lighting. Mobilé's housing is lightweight extruded aluminum in a semigloss silver finish. 847/451-0700. Alkco, Franklin Park, Ill. **CIRCLE 211**

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In response to the tragic consequences of the attack on the World Trade Center on September 11, 2001, and the outpouring of offers of support from representatives of the design, construction and real estate industry, the New York Building Congress has established a World Trade Center Memorial Fund through its New York Building Foundation. The Fund will accept contributions from firms, organizations and individuals who wish to direct their support to the families of victims who served the industry and to area restoration. To most effectively administer the Fund, contributions will be disbursed in consultation with contributors and other industry organizations sponsoring similar efforts, and will be guided by the Building Foundation's Board of Governors.

The New York Building Foundation was formed in 1998 to promote the long-term growth and well being of the industry through a program of research, education and philanthropic activities. The Foundation's World Trade Center Memorial Fund is accepting donations effective immediately. Checks should be made payable to NYBF World Trade Center Memorial Fund and mailed to the New York Building Foundation c/o New York Building Congress, 44 West 28th Street, 12th Floor, New York, New York 10001.
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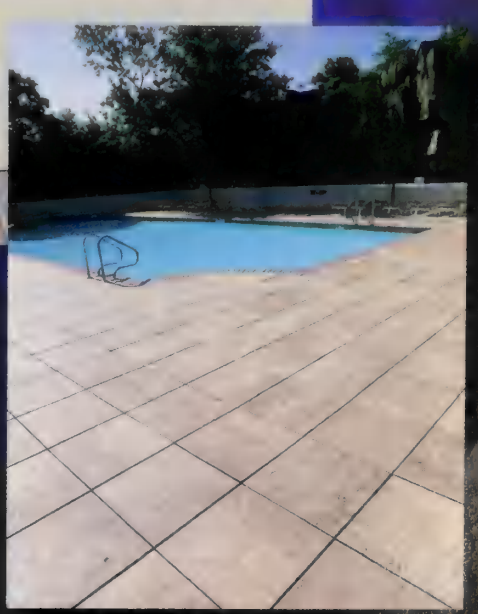
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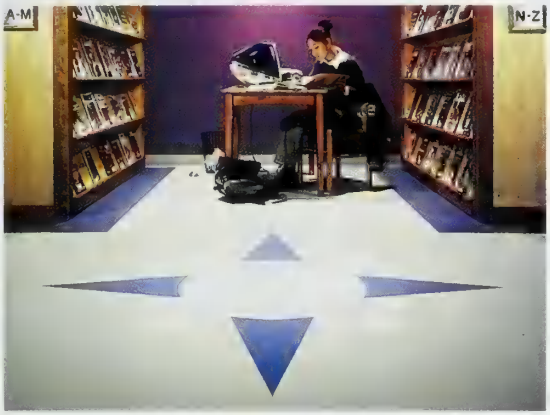
CIRCLE 82 ON INQUIRY CARD

New Products

Specifying resilient and laminate flooring requires a balance between beauty and brawn. While resilient flooring needs to provide comfort and safety, it also should offer fresh colors and styles. Makers of high-performance laminate flooring are developing new techniques to reflect the influence of natural materials such as stone and wood. *Rita F. Catinella*

New offerings in speckled rubber tile and cushioned flooring





Roundel Vibrance in a day care application, top left; ComforTech Fountain in an education environment, top right.

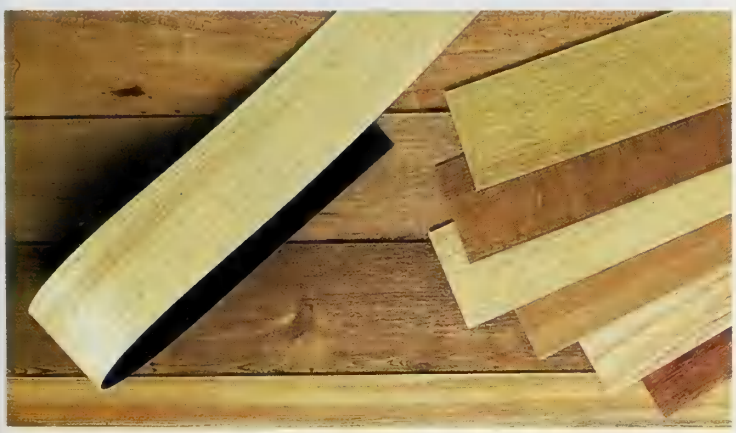
New from Johnsonite is the Roundel Vibrance speckled rubber tile line in a variety of color combinations. The initial Vibrance offering consists of a colorful palette of eight multicolored designs offered in four surface treatment options for day care, health care, retail, or hospitality environments. Colors include names such as Sunburst, Blue Skies, and Watermelon. Vibrance is wear resistant, and the formulation of the tile self-heals most scratches and abrasions. A heavy-duty rubber composition provides slip resistance.

Also new from Johnsonite is the ComforTech Fountain cushioned flooring line. ComforTech Fountain is comprised of earth-tone colors that coordinate with the ColorMatch System of wall base, transitions, corner guards, and other flooring solutions for a totally integrated space. The cushioned inner layer of ComforTech Fountain offers thermal protection in all seasons and provides comfort underfoot, helping to reduce foot and leg fatigue. It also absorbs noise from rolling and pedestrian traffic, making it a good substitute for carpet. 800/899-8916. Johnsonite, Chagrin Falls, Ohio. CIRCLE 212

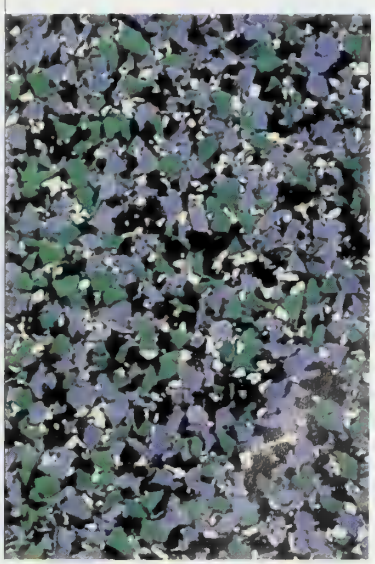
Rubber the right way

Atmosphere recycled rubber flooring's high-density composition consists of Styrene-Butadlene Rubber (SBR) recycled from post-consumer auto tires and is combined with colored granules of Ethylene-Propylene Diene Monomer (EPDM) rubber homogeneously mixed throughout. Atmosphere provides excellent indoor-air-quality benefits, has little or no volatile organic compounds, and will not promote microbial or fungal growth. Atmosphere offers antifatigue qualities, shock attenuation, vibration dampening for foot or rolling traffic noise, and resistance to stains from ammonia, bleach, ink, and lipstick. End-use applications include educational, institutional, health care, retail, and office environments. A testimony to its resilience is the ability to withstand golf spikes, ice skate blades, and barbell indentations. No rubber trees were harmed in the production of this nonlaminated flooring product. 877/843-8184. To Market, Los Angeles. CIRCLE 214

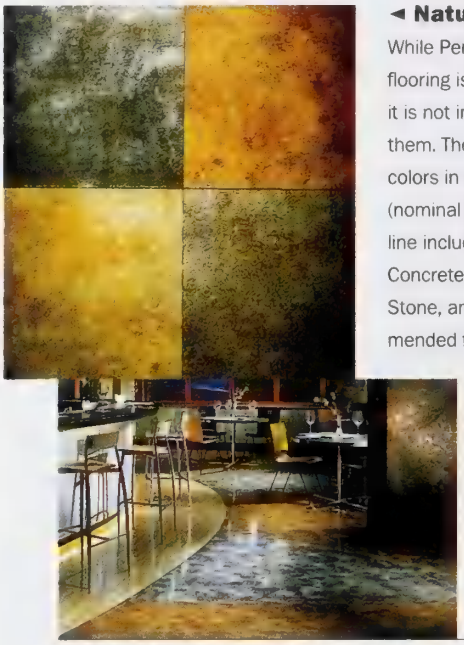
Thicker vinyl flooring in wood and stone styles



Polyflor Kudos is a new alternative to decorative vinyl flooring. Distributed by Bonar Floors U.S., Polyflor Kudos was introduced to the American market this summer. The vinyl planks in the Polyflor Kudos collection come in 10 different wood tones and can be cut to create patterns and various floor designs. Actual images of natural materials are used to create the 14 different stone designs also offered in the collection. Available as tiles, these marble, slate, and stone motifs can be cut to create patterns and various floor designs. Polyflor Kudos is constructed with a 21 millimeter wear layer, which is 1 millimeter more than the recognized standard for vinyl flooring. It is manufactured according to ISO 14001 environmental management standards. Polyflor Kudos is part of the Polyflor vinyl flooring collection manufactured in the United Kingdom and distributed by Bonar Floors U.S.. 800/852-8292. Bonar Floors, Newnan, Ga. CIRCLE 213

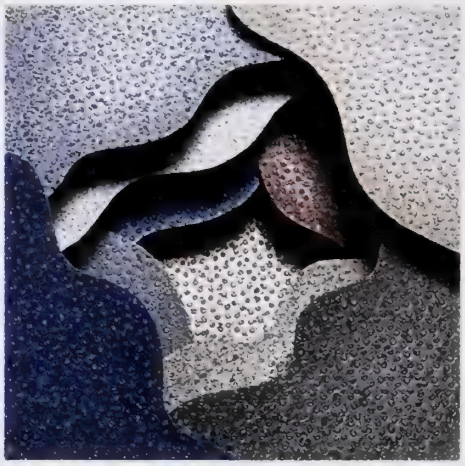


New Products



◄ Natural perspective

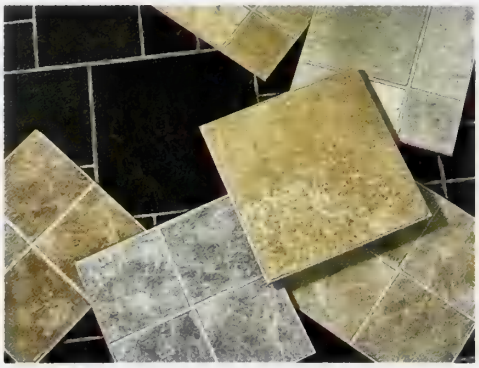
While Perspective high-performance flooring is influenced by real materials, it is not intended to directly replicate them. The new line is available in 12 colors in both sheet (6'6" wide) and tile (nominal 24" x 24") formats. The color line includes Antiqued Metal, Brushed Concrete, Granite Blue, and Quarry Stone, among others. It is recommended for high-profile hospitality, retail, entertainment, health care, office, and education applications. 877/ARMSTRONG. Armstrong World Industries, Lancaster, Pa. **CIRCLE 215**



▲ Stay grounded

Altro has updated the colors in their Altro Marine 20 collection of textured safety flooring for barefoot applications. Altro Marine 20 incorporates a bacteriostat and is suited for use in showers and bathrooms in hotels, schools, and hospitals; around swimming pools, whirlpools, and therapy tanks; and in walk-in showers for the physically disabled and elderly where hygiene is an important consideration. Like all Altro high-performance flooring products, the Altro 20 Marine range meets the current slip-resistant static coefficient of friction requirements of the ADA and OSHA. 905/564-1330. Altro, Mississauga, Ontario. **CIRCLE 216**

► Classix laminate

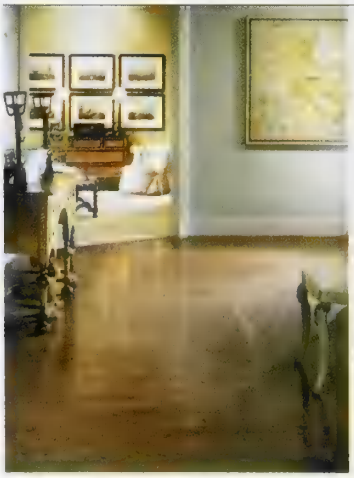


Formica Flooring's Stone Classix laminate flooring collection captures the look of real grouted stone in a durable surface. Three of the six new designs feature a random block arrangement offering a mixture of square and rectangular stone images sized from small 8" x 8" blocks to a giant 24" x 24" block. The other three designs capture the clean chiseled edges and subtle marbleized veining of classic marble looks. Four 12" x 12" blocks are designed within the standard 24" x 24" module. 800/FORMICA. Formica Corporation, Cincinnati. circle 217

► Flooring updates

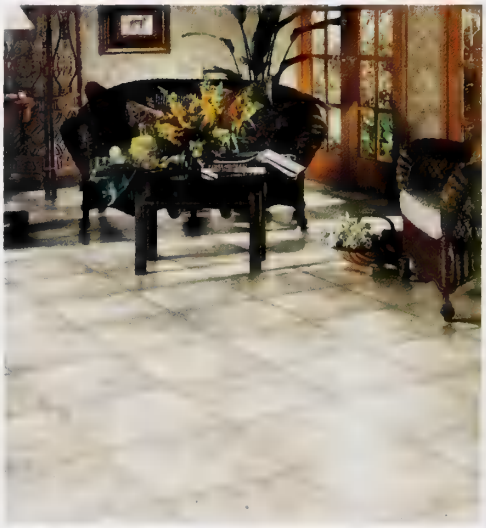
Mannington Commercial is updating the Fine Fields inlaid sheet flooring line with 12 new colors, while the BioSpec homogeneous sheet flooring line receives nine new colors, including six low-contrast colors that make it easier to see dropped items. Both may be heat welded or chemically welded to seal out germs and moisture. Solid-color and camouflaged weld rods are available. 800/241-2262. Mannington Commercial, Salem, NJ. **CIRCLE 218**





◄ Wood planks, stone tiles

Wilsonart Classic flooring is a collection of high-performance laminate including a grouping of 12 planks representing rich wood grain styles and 18 tiles representing natural slate, marble, and stone designs. Wilsonart completes the Classic Collection with coordinated molding and trims, as well as a step-down molding that adds the finishing touch to exposed edges of stairs and landings. 800/710-8846. Wilsonart International, Temple, Texas. **CIRCLE 219**

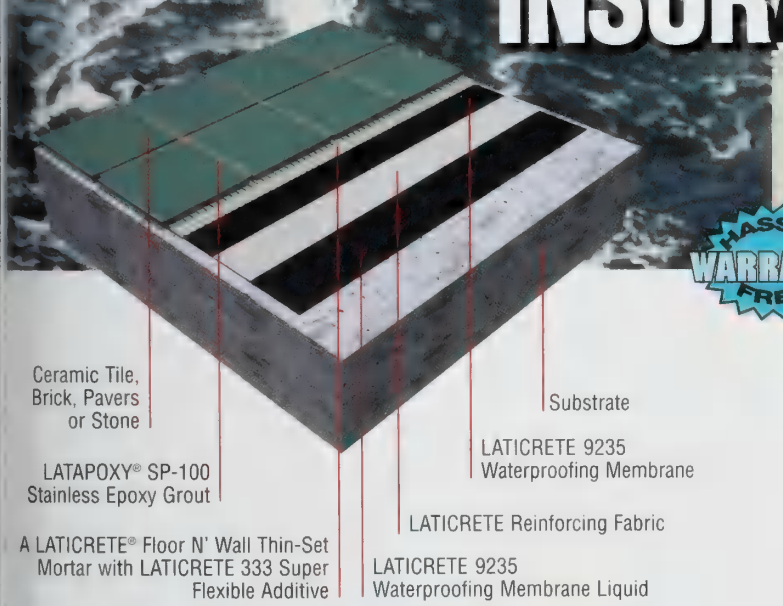


▲ Tough as stone

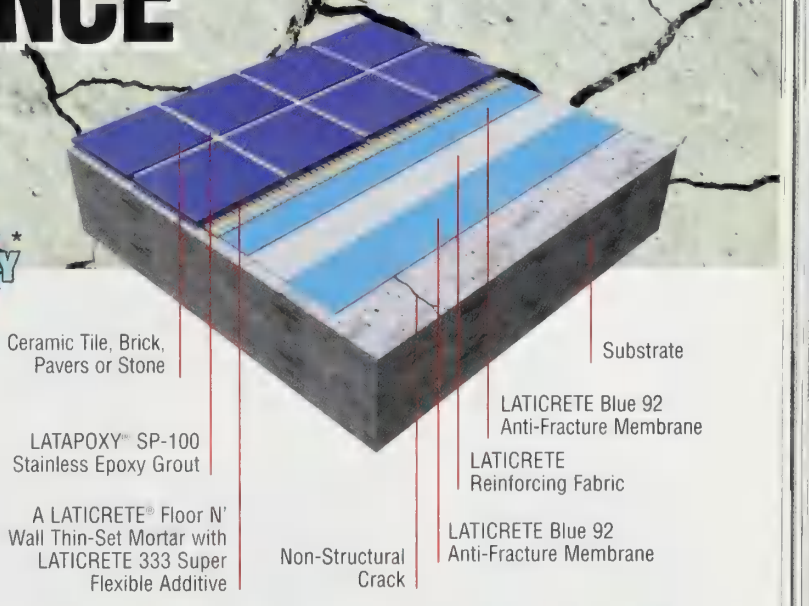
DuraStone HPF (high-performance flooring) comes in a 16" x 16" tile size and features a hefty, extra-thick .16" overall construction, micro-ground edges, and a limestone composite base that provides stability. Congoleum utilizes a patent-pending nano-composite technology in the creation of the product: Nylon particles and aluminum oxide are suspended in the surface glaze. DuraStone's new surface glaze technology features a satin-gloss acrylic polymer matrix for stain resistance in addition to performance against scratches, scuffs, and fading. 609/584-3000. Congoleum Corporation, Mercerville, N.J. **CIRCLE 220**

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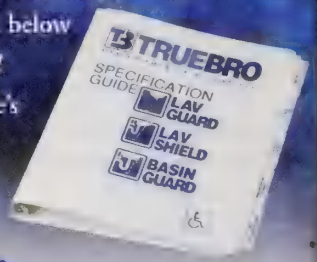
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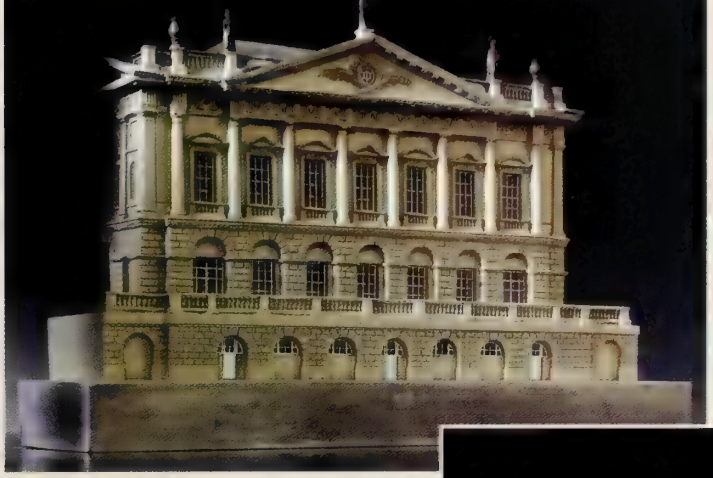
CIRCLE 84 ON INQUIRY CARD

Product Briefs



◄ Hand-knotted rugs

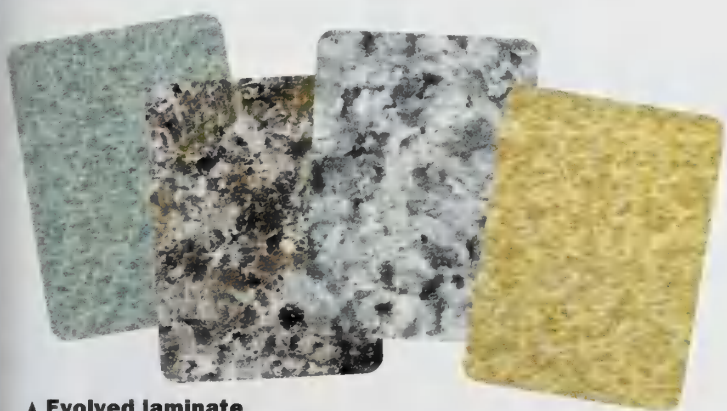
The concept behind the new collection of rugs designed by Maria Churchill for Michaelian & Kohlberg was to create a coordinated group using the same 15-color palette. The Churchill Collection is made in China of hand-spun and hand-knotted wool. The knot structure of these carpets has been engineered to reduce the number of knots per inch, saving both material and labor costs. All of the 10 patterns come in three sizes: 4' x 6', 6' x 8½', or 8½' x 11½'. 212/431-9009. Michaelian & Kohlberg, New York City. **CIRCLE 221**





Product of the Month
Architectural models

For the past 13 years, Timothy Richards has painstakingly created architectural models and bookends relying on thorough research, using a combination of original plans, where available, and detailed photographs. Richards has been commissioned by the Victoria & Albert Museum, Sir Terence Conran, and the Royal Ontario Museum. His repertoire in miniature includes precise replications of such famous architectural structures as 10 Downing Street, Twin Towers of Wembley, Kensington Palace, The Hoover Building, Charlotte Square, and the Temple of Four Winds, along with the homes of Sherlock Holmes, Jane Austen, and Charles Dickens. His latest work, Dexter Gate, was commissioned by Harvard University to celebrate the centenary of the historic landmark. 303/448-8842. House of Ascot, Boulder. CIRCLE 222



▲ Evolved laminate

The evolv collection of Wilsonart laminate reflects the theme of "compressed" materials, with references to paper fiber, glass filament, and metallic flecks. Evolv's 12 colors break down into four thematic families: light, glow, accent, and bright. Ten new designs in the MesaGranite Collection are intended to offer the look and tactile quality of granite. 800/433-3222. Wilsonart Intl., Temple, Texas. **CIRCLE 223**



▲ Nature has it covered

The Premier Collection III is a two-volume set of high quality textile and specialty wallcoverings for commercial interiors. The Wovens binder includes linens, woven blends, silks, and suedes, while the Naturals binder offers woven papers, grass cloths, rice papers, and corks. A special "Earth Safe" icon is printed on the tip cards of those items that are manufactured with materials and processes that are environmentally friendly. 800/347-0550. Wolf-Gordon, Long Island City, N.Y. **CIRCLE 225**

► Melted in there



Villiglas tile is made by melting colored metal pigments directly into glass. Manufactured in Austria, Villiglas is available in 45 colors in a variety of sizes and finishes. Like ceramic tiles, the eight millimeter Villiglas can be cut and shaped using traditional tile-setting methods. No special tools or setting materials are required for installation. Mosaic tiles, mounted on net backing are available in three sizes. The River Mosaic comes in a solid colored, 12" square. 866/EURO-TILE. Euro-Tile, Fort Myers, Fla. **CIRCLE 224**

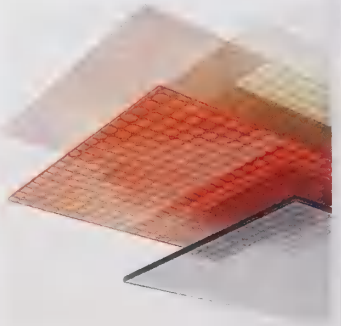
Product Briefs

► Nonprofit workshop



Alpha Workshops is a nonprofit decorative painting and design company employing in-house-trained designers living with HIV and AIDS. Conceived by Ken Wampler in 1994 to improve the quality of life for people living longer and healthier with HIV/AIDS, Alpha Workshops was designed to form a bridge between the for-profit and not-for-profit worlds. Through an intense 10-week training period, Alpha Workshops introduces potential employees to a wide range of creative arts, including all types of ornamental painting for surfaces such as wood and fabric. Alpha then employs the graduates of its training program to create wallpaper, to restore and refinish furniture, and to make everything from tables to lamps to greeting cards for its shop. 212/594-7320. The Alpha Workshops, New York City. **CIRCLE 226**

► Imago that



Three new patterns have been added to the Imago hard surface collection. Limelight has a waxy, translucent finish and delicate moiré effect; Ozone transforms a puckered window fabric into a tone-on-tone graphic with an icy smooth finish; and Mirage encapsulates a metallic mesh fabric and offers a pronounced embossed rib pattern. 800/343-5665. Knoll, East Greenville, Pa. **CIRCLE 227**



◄ Attic adjustment

Blue cross-rib block panels from Hy-Lite Products were used to create a room divider for the kitchen and a private bathroom area in the attic of this historic 1912 home in Providence, Rhode Island. The acrylic blocks were roughly 70 percent lighter than installed glass blocks. The lightweight aspects of the blocks eliminated the need to restructure the entire floor. 800/827-3691. Hy-Lite Products, Beaumont, Calif. **CIRCLE 228**

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Product Briefs



▲ Expansive studio

To simplify the often lengthy customization process and offer a tool with which to create custom modular carpeting, Lees Squared launched the Design Studio, a grouping of 19 new custom designs and 10 running line patterns available in 18" carpet tiles. 336/379-2000. Lees, Greensboro, N.C. **CIRCLE 229**

▼ Got to wear shades

Pella's Designer Series offers options such as between-the-glass Slimshade blinds, pleated shades, or real wood muntin bars. Ideal for hospitals, schools, or office buildings, the between-the-glass options can increase both energy efficiency and comfort. 888/84-PELLA. Pella Corporation, Pella, Iowa. **CIRCLE 230**



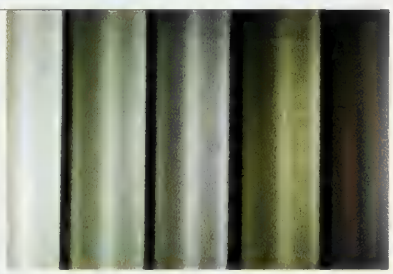


◄ Mix and match

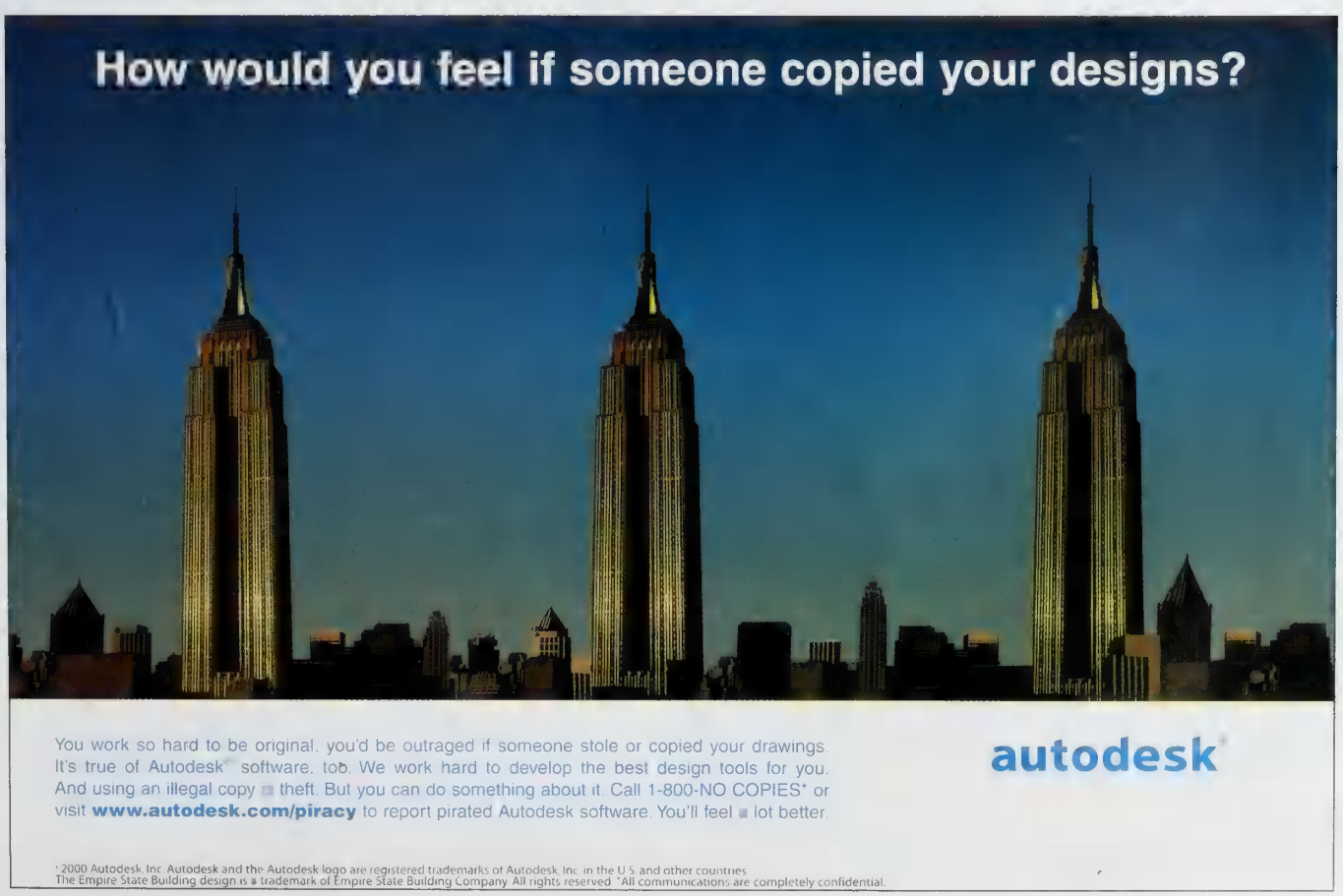
In Haworth's Mix project, two spaces are created using elements from the company's if and Premise lines. Conceived and designed by Ideation's Ralph Reddig, the Mix prototype spaces were created in four weeks. Mix 3x6 (shown) maximizes a tiny footprint without sacrificing standard amenities of storage, seating, worksurfaces, white boards, and technology support. 800/344-2600. Haworth, Holland, Mich. **CIRCLE 232**

► Leather that is not

Leather or Not faux leather upholstery features a technologically advanced polyurethane coating that is offered in an assortment of rich colors and a soft luminescent sheen that gently picks up the light. Available in a 55" width, Leather or Not is appropriate for a wide range of commercial, residential, or hospitality applications. 518/235-2828. Gretchen Bellinger, Cohoes, N.Y. **CIRCLE 231**



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Product Briefs



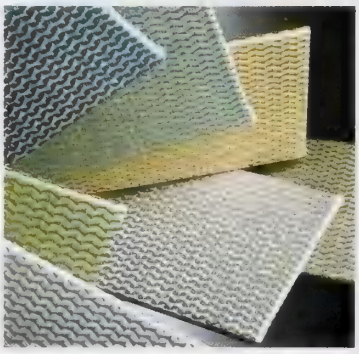
▲ Conscientious carpeting

DuPont, the world's largest recycler of nylon since 1991, has announced the successful completion of an environmental initiative to upgrade and expand its nylon carpet reclamation center in Calhoun, Georgia. In addition to receiving, sorting, baling, and packaging used carpet, DuPont has added equipment to recover nylon at the facility. In August, the facility reached its full operational potential of producing 1,000 pounds of recovered nylon per hour. The process involves recovering a clean nylon 6,6 resin from used nylon carpet recovered in the DuPont Carpet Reclamation Program. Carpet is recycled into other materials such as resilient flooring, carpet cushion, sod reinforcement, automobile parts, and new carpet. 800/4-DUPONT. DuPont, Atlanta. **CIRCLE 233**

► Show what you got

The bin and small bookshelf accessories to ALU's Reed and Autopole systems are designed to provide effective presentation and storage for a variety of merchandise. ALU is specified by architects and designers for museums, showrooms, spas, and salons. ALU offers a diverse range of solutions for clients who need to display eyewear, jewelry, cosmetics, and accessories. 212/924-8713. ALU, New York City. **CIRCLE 234**

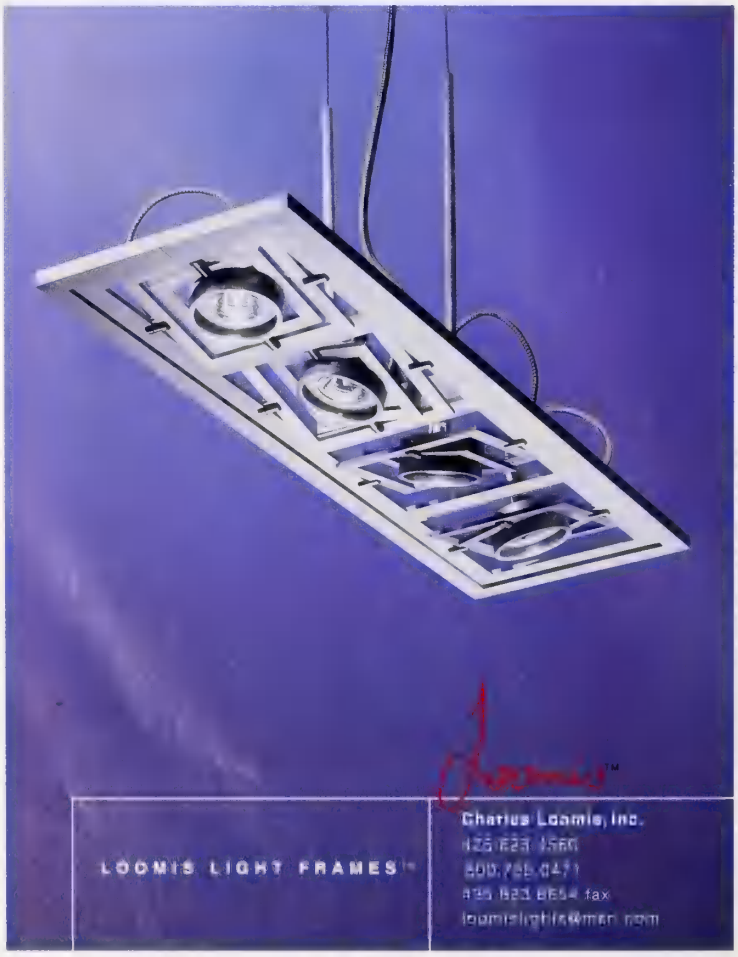




◄ Friendlier panel fabric

Textus offers three vertical surface Terratex fabrics for use on furniture systems, as wrapped panels, or wall covering. Terratex is a family of ecologically conscious fabrics produced by Interface. Terratex products are manufactured with continuously improving methods to reduce waste, emissions, energy, and water usage. 212/343-9858. Textus, New York City. **CIRCLE 235**

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Product Briefs

► Translucent photography



Photographer Amanda Weil, of Weil Studio in New York City, collaborates with architects and designers to create customized installations using Cesar Color Glass. "The combination of glass and translucent photography creates a very powerful medium," says Weil. GlassFresco is a patented technology that permanently bonds a digitally printed plastic interlayer between two lines of safety glass. It is capable of reproducing an exacting photographic image of virtually any size (shown above is Weil's Water Wall). Weil has collaborated with notable architects and designers, including Butler Rogers Baskett and Belmont Freeman Architects. Projects that Weil Studio and Cesar Color have worked on include Grand Central Optical in New York, Tuscan Steak restaurant in New York, and a restaurant at the Wyndham Hotel in Chicago. 602/437-1201. Cesar Color, Phoenix. **CIRCLE 236**

► Efficient options



At Simonton Windows, multichambered construction and dual-tower glazing legs help increase condensation resistance and overall structure of the window. Intercept Spacer, constructed of tin-plated steel in a U-channel design, is less conductive than aluminum. The Super Spacer system is made of nonmetallic solid silicone foam containing millions of small, insulating air pockets. 800/SIMONTON. Simonton Windows, Parkersburg, W.Va. **CIRCLE 237**



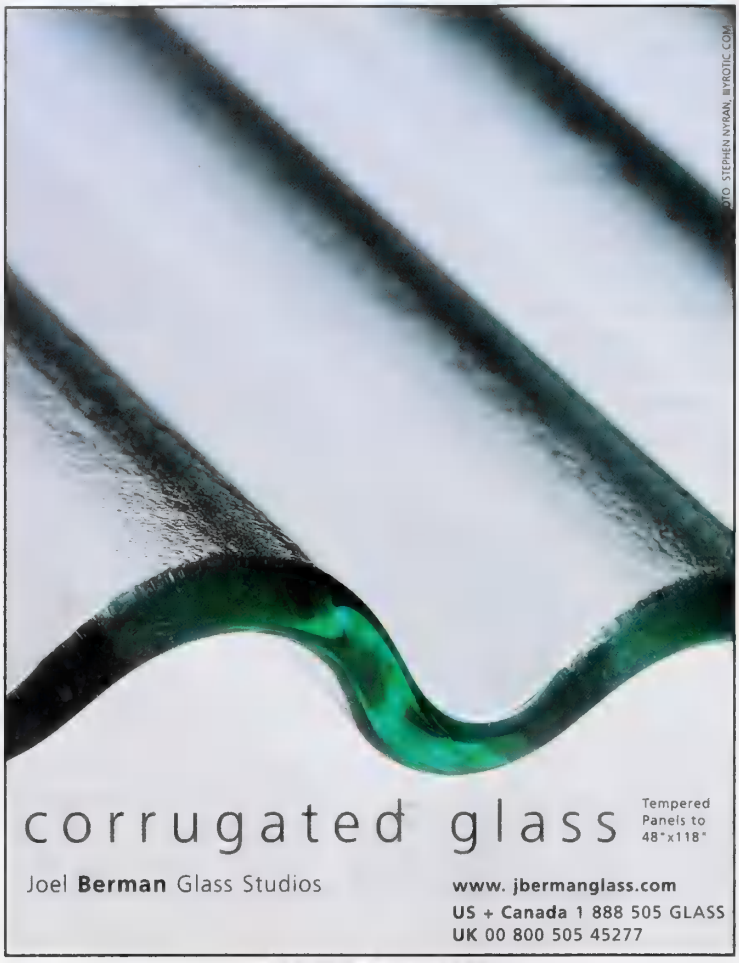
◄ Structural bonding gel

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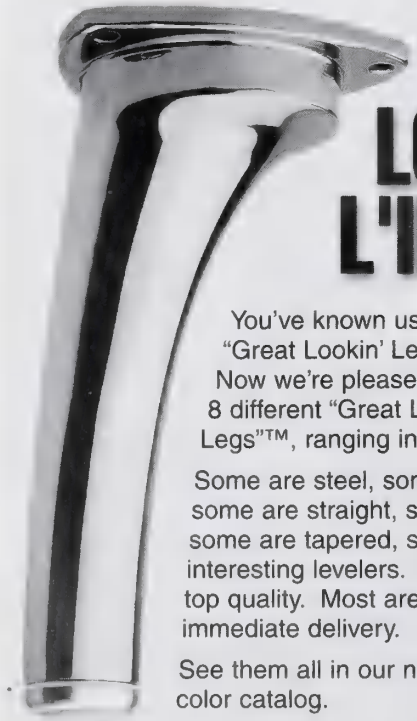
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Product Literature

Sound transmission

Zero International is offering a guide to understanding the science of sound and how it applies to door openings titled *Sound Solutions from Zero: High-Performance Acoustical Gasketing Systems.* The new 20-page brochure discusses the basic principles of acoustics and explains the mechanics of sound transmission with an emphasis on how sound transmission through barriers is measured and compared. 800/635-5335. Zero International, Bronx, N.Y. **CIRCLE 240**

Metallic door frame catalog

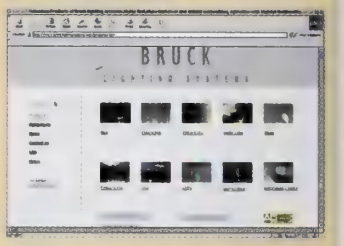
Chicago Metallic's new door frame catalog details the standard three-sided knockdown frame, sidelights, and borrowed lights. The ten standard priced color selections are shown in the catalog. 800/323-7164. Chicago Metallic, Chicago. **CIRCLE 241**

Wiring devices

A 12-page brochure describing its new, redesigned industrial series 309 watertight Pin & Sleeve Devices, including electrical plugs, connectors, receptacles, inlets, and both fused and unfused mechanical interlocks, has been issued by Cooper. 800/366-6789. Cooper Wiring Devices, L.I.C., N.Y. **CIRCLE 242**

NEW SITES FOR CYBERSURFING

Bruck's newest lighting system products **www.brucklighting.com**



CAD details for curtain wall, storefronts, and entrances **www.tubeliteinc.com**

Online kitchen appliance resource **www.Jenn-Air.com**

Online resource for locating FSC certified products **www.certifiedwood.org**

Italian floor, ceiling, wall, table, and suspension lighting **www.foscarini.com**

Architectural joint systems

The JointMaster USA architectural binder provides drawings and three-part specifications and installation instructions on architectural joint systems. Each architectural joint system has a dedicated page containing features, specifications, drawings, and installation instructions. 800/222-5556. InPro Corporation, Muskego, Wis. **CIRCLE 243**









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Product Literature

Steel joist manual

The Steel Joist Institute's 318-page *60-Year Joist Manual* contains a chronological compilation of all specifications and load tables of SJI steel joists manufactured between 1928 and 1988. 843/626-1995. Steel Joist Institute, Myrtle Beach, S.C. **CIRCLE 244**

Seating and table collections

Kron USA has introduced a brochure detailing their new Sistema Collection by the award-winning Spanish industrial designer, Ramon Benedito. 800/566-KRON. Kron USA, Pompano Beach, Fla. **CIRCLE 245**

Lighting product binder

TSAO Designs has announced the availability of a comprehensive new product binder. The binder features tabbed sections to easily locate TSAO's Designer Series pendant lights and wall sconces; work-surface, wall, and floor task lighting products; new suspended track lighting systems; and custom-design capabilities. 877/966-9559. TSAO Designs, Bridgeport, Conn. **CIRCLE 246**

Theater/auditorium lighting

Targetti North America has announced the availability of a comprehensive new brochure detailing their Tivoli division's theater and auditorium lighting products. The 16-page, full-color brochure provides an overview of the company's lines of modular wall, seat, step, and aisle lighting products. 714/957-6101. Targetti North America, Santa Ana, Calif. **CIRCLE 247**

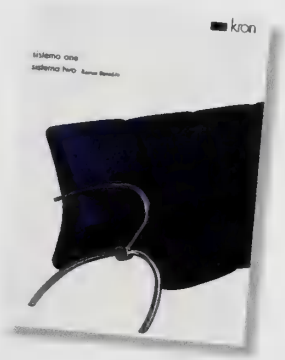
Roof-edge system CD

Metal-Era, a manufacturer of tested and approved roof-edge systems, announces the release of its full product manual on CD-ROM. The manual features detailed information and drawings on the company's entire line of fascia, coping, and gutter systems, including its new specialty edge products. 800/558-2162. Metal-Era, Waukesha, Wis. **CIRCLE 248**

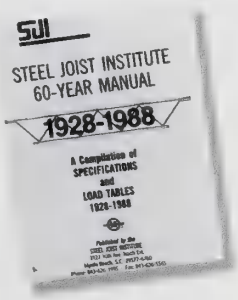
Window fashions

Hunter Douglas has published *Beautiful Windows: Stylish Solutions from Hunter Douglas Window Fashions.* The 144-page, full-color book focuses on how Hunter Douglas products helped 19 homeowners meet their needs for privacy and light control. 800/937-STYLE. Hunter Douglas Window Fashions, Upper Saddle River, N.J. **CIRCLE 249**









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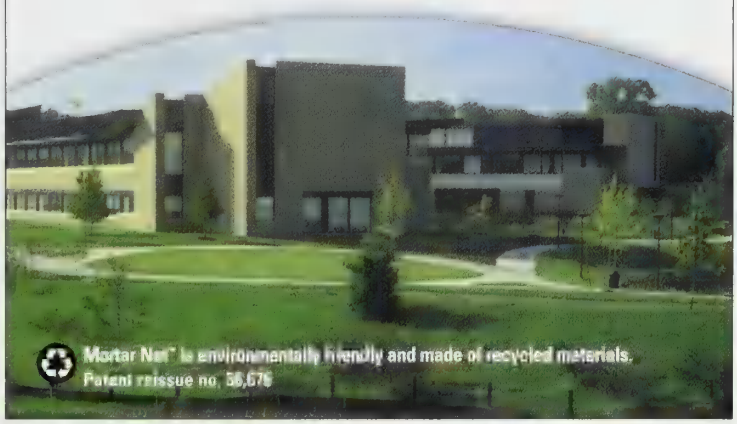
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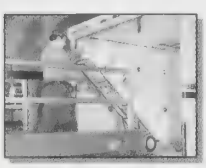


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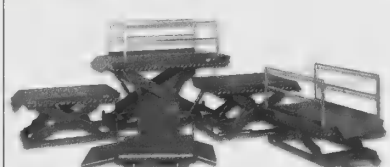


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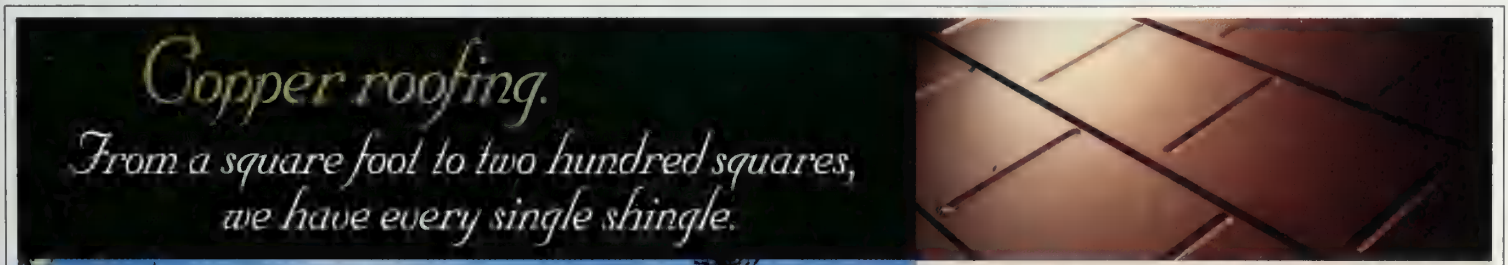
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138	*55*	Adams Rite Manufacturing Co
227	*92*	Advance Lifts
239		AIA Bookstore
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57	*29*	Alusuisse Composites Inc
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212-213	*80*	Architectural Area Lighting
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136	*53*	B52 Software Inc
39	*17*	BEGA
10-11	*5*	Bentley Systems Inc
101	*48*	BPB Celotex
32	*15*	Bradley Corporation
42	*19*	Buddy Rhodes Studio
173	*65*	Bulthaup
61	*31*	C/S Group
224	*87*	CAN Precast/Prestressed Conc Inst
56	*28*	Canterbury International
55	*27*	Ceco Door Products
93	*46*	CENTRIA Architectural Systems
224	*86*	Charles Loomis
72	*37*	CNA/Victor O Schinnerer & Co Inc
23		Compaq Computer Corporation
50-51	*23*	Confalonieri USA
165	*62*	Copper Development Association
87	*44*	DORMA Group North America
226	*90*	Doug Mockett & Company Inc
14	*7*	Dow Chemical Company
12	*6*	DPIC Companies
49	*22*	Eagle Windows & Doors
36	*16*	EFCO Corporation
201	*76*	elliptipar
81	*42*	Ellison Bronze
103	*50*	Equitrac
163	*60*	Follansbee Steel
205		Forms + Surfaces
190	*72*	Gardco Lighting
162	*59*	Gary Price Studios
67	*34*	GE Distributed Power
226	*89*	Glass Studios Ltd
104-105	*51*	Glen Raven Mills Inc
166	*63*	Graham Architectural Products
58	*30*	Graphisoft
229	*93*	Haws Corporation
40	*18*	Hewlett-Packard Company
164	*61*	Homasote
239	*97*	Invisible Structures Inc
188	*71*	Ivalo Lighting Incorporated
79	*40*	IWP
30-31	*14*	Johnson Controls
66	*33*	Kalwall
80A-B		Keilhauer
209	*78*	Kim Lighting
219	*83*	Laticrete International Inc
53	*25*	Lonseal
207	*77*	Lucifer Lighting Company
194	*74*	Lutron
16-17	*8*	Marvin Windows & Doors (Ultrex®)
94-95	*47*	Marvin Windows & Doors
26-27		Masland Contract
102	*49*	MBMA/Metal Building Mfrs Assn
52	*24*	MechoShade Systems Inc
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2-3	*2*	Mohawk Group, The
227	*91*	Mortar Net
239	*96*	Musson Rubber Co
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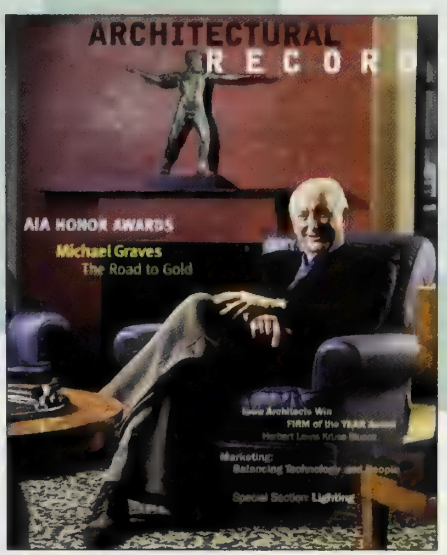
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Cast Aluminum Lighting

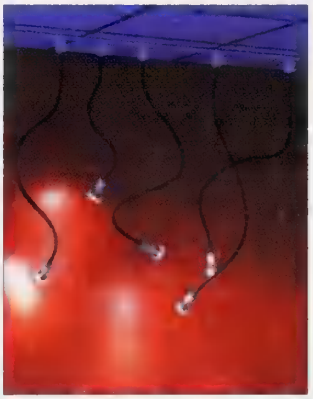


Sun Valley Lighting manufactures an extensive line of Standard & Custom cast aluminum lighting poles & fixtures in all period styles. Our 50 years of design & manufacturing experience provides you with unexcelled product quality. Our staff of designers, engineers, and tool makers are here to assist you. Our in-house foundry assures quality and prompt delivery at competitive costs.

Sun Valley Lighting

CIRCLE 150 ON INQUIRY CARD

Snakelight



The flexibility of the Snakelight solves a multitude of lighting problems. Subtle accent lighting or part of a bold design statement, Snakelights are an affordable & elegant solution for both residential & contract installations. Snakelights come in a variety of mountings, sizes & colors with custom options available. Visit www.dunsford.com or call for a free brochure. Dunsford Lighting, P.O. Box 2554, Vashon Island, WA 98070. Ph: 206.463.9272 Fax 206.463.6717.

Dunsford Lighting

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Asymmetric Lighting



Rebelle Architectural Lighting's new family of asymmetric luminaires, Streamline is available in three scales to suit any exterior or interior lighting application. These adjustable fixtures can be oriented as uplights or downlights and are available in wall, wall arm, pendant, and post mounted configurations. Streamline fixtures are offered with metal halide, compact fluorescent, or incandescent lamps to suit your particular project needs. www.rebellelighting.com

Rebelle Architectural Lighting

CIRCLE 152 ON INQUIRY CARD

Modern Elegance



Taliesin®-3 Table Lamp, a 1997 adaptation of the Frank Lloyd Wright designed Taliesin®-2 Floor Lamp. Size: 29 ¾" High x 8 ¼" Wide x 8 ¼" Deep. Other types, floor lamps, wall sconces, and pendants available. Web: www.yamagiwausa.com Ph: 888-879-8611, 31340 Via Colinas, #106, Westlake Village, CA 91362 ©2001 F.L. Wright Fdn. All Rights Reserved

Yamagiwa USA Corporation

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Architectural Luminaries



Space Cannon Illumination proudly introduces our architectural color wash HSR fixture, the Focus, available in 700w and 1200w power sources. This fixture has an onboard computer to control the 3 dichroic tubes, zoom and shutter and includes a kit of 4 lenses for beam shaping up to 90°. 888-705-1028 www.spacecannon.com

Space Cannon

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UV/FX Scenic Productions

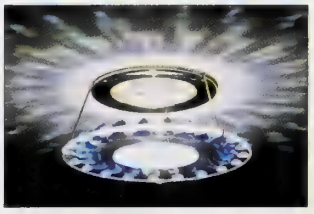


UV/FX wrote the book on Ultra-Violet Visual Effects which are designed, art directed and painted on any surface from floor to ceiling. UV/FX specializes in Dual Image Scenery, Complete Invisible Treatments, Day to Night Effects, 3-D Scenery and more for changing themed walls, backdrops and ceilings. www.uvfx.com. Tel/Fax 310-392-6817.

UV/FX

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Contemporary Crystal Creations



The Aura of Light. Orbit North America Ltd. is proud to introduce a line of breathtaking crystal creation panels from the House of Swarovski for its recessed down-light series. Crystal making at its best, the House of Swarovski is known for its design excellence, innovation and unparalleled crystal quality. We also offer a customizable projection crystal panel for use in restaurants, bars, clubs, corporate offices or retail environments. www.orbitlight.com

Orbit North America, Ltd.

CIRCLE 156 ON INQUIRY CARD

Reflections Vanity Lighting



The newest in vanity lighting is Dreamscape's Reflections, a recessed vanity fixture that is placed between sections of mirror. When the diffuser is installed, it becomes flat with the mirror. This dimmable fixture incorporates the newest in T-5 flourescent technology, a light source with high lumen output and excellent color rendition. Visit our website: www.dreamscapelighting.com or fax a request for literature to Fax: 310-202-8535.

Dreamscape Lighting, Inc.

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Concrete Waterproofing by Crystallization

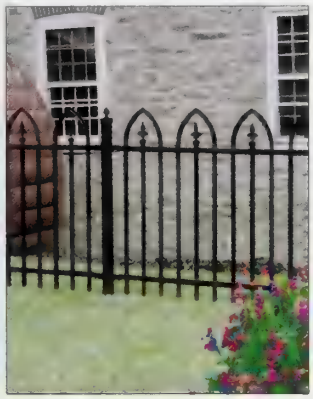


Applied as a slurry coating Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that "plugs" the pores of the structure preventing water seepage. Xypex is ideal for use on the "inside" of wet underground structures. Call toll free 1-800-961-4477 or visit our web site at www.xypex.com

Xypex Chemical Co.

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Ornamental Picket Fence with a Purpose

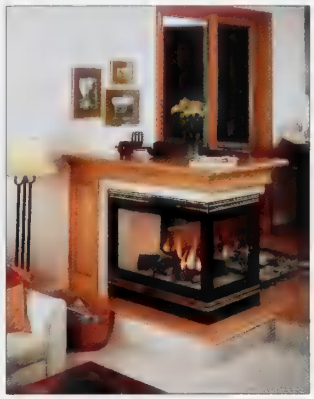


Monumental Iron Works™ is a modular system with the solid look & feel of authentic wrought iron. When assembled, it creates one of the strongest ornamental fence systems on the market. Welding processes are eliminated to avoid red rust problems. MIW utilizes a duplex coating of polyester resin over hot-dip galvanized steel for corrosion protection. Master-Halco, Baltimore, Maryland 21040. 410.676.2744 Email: spec@fenceonline.com Web site: www.fenceonline.com

Monumental Iron Works™

CIRCLE 159 ON INQUIRY CARD

Three-Sided Fireplace for Unlimited Installations



Heat-N-Glo introduces model PIER-TRC, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The PIER-TRC is perfect as a room divider, bar, end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the PIER-TRC can be operated by remote control for the ultimate in convenience. Call 888-427-3973.

Heat-N-Glo

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Melton Classics: Columns, Balustrades, and Mouldings



Melton Classics architecturally correct columns, balustrades, and architectural details, are the industry standard for quality and design. Columns are available in fiberglass, resin composite, GFRC, GRG and wood. MarbleTex™ Balustrades and columns are integrally colored and require no painting. Ask us about our complete line of architectural ornamentation in Melton Stone™ cast stone. Call toll free 800-963-3060 or visit www.meltonclassics.com

Melton Classics

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CHROMIX® Admixtures for Color-Conditioned Concrete

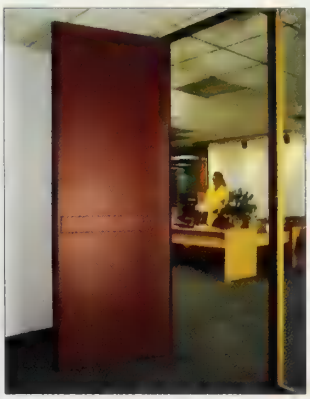


Award winning projects begin with award winning materials. CHROMIX® Admixtures for Color-Conditioned Concrete are colored, water-reducing, set-controlling admixtures for architectural concrete. Coloring concrete integrally, they produce rich hardscapes & precast, tilt-up, or cast-in-place buildings of natural beauty. CHROMIX Admixtures provide permanent, streak-free color conditioning, & increased concrete strength at all ages. 800-800-9900 or info@scofield.com

L. M. Scofield Company

CIRCLE 162 ON INQUIRY CARD

Applications



The new flush exit device is designed for use on TOTAL DOORS in single, pairs and double egress pairs. Ideal for corridor & elevator lobby applications in all commercial facilities. The exit device allows continuous, uninterrupted sightlines in corridors when doors are pocketed in the open position. Its quiet operation is ideal anywhere noisy hardware is a problem. TOTAL DOORS can be retrofitted into existing door frames, saving time & expense.

Openings

CIRCLE 163 ON INQUIRY CARD

ADA Insulation Safety Covers

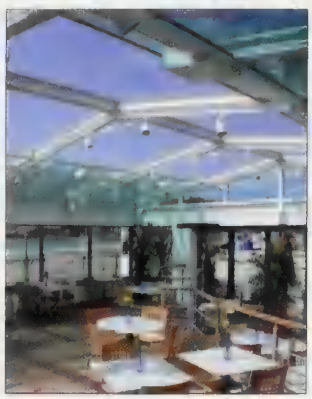


Plumberex Specialty Products, Inc. is the only company that manufactures a complete line of ADA safety covers for commercial & residential applications, meeting all building & fire codes with a -0- smoke rating. The Handy-Shield™ Safety Cover is the one and only ADA safety cover on the market with a "Dual" fastening system to help deter theft! For more information call 800-475-8629, Website: www.plumberex.com or email: plumberex@earthlink.net

Plumberex Products, Inc.

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Retractable Roof Enclosures & Skylights



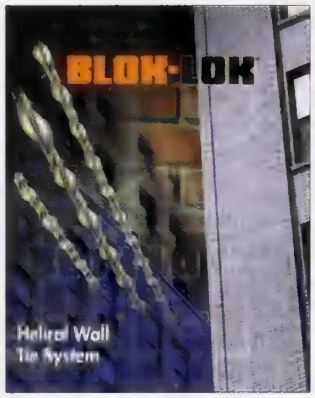
Custom designed retractable roof panels and operable skylights create year-round settings. At the touch of a button, motorized panels retract to open 50% of the roof area, letting in sunshine and fresh air. Maintenance-free thermally broken aluminum framing. Enclosures ideal for restaurants, patios, pools and atriums. For more information, call 800-267-4877, Email: openaire@openaire.com or visit www.openaire.com

OpenAire Inc.

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E-mail: Ally_Wingate@McGraw-Hill.com

Stainless Steel Helical Wall Tie System



Blok-Lok, with over 35 years experience in the design & manufacture of masonry reinforcing and tie systems, provides innovative solutions for the repair & stabilization of defective walls. Blok-Lok offers an economical stainless steel helical wall tie that is driven into position through a properly sized pilot hole, providing a positive connection between wythes, while allowing for differential movement. Call 800-561-3026 or visit our website at www.blok-lok.com

Blok-Lok, Limited

CIRCLE 166 ON INQUIRY CARD

Carriage House Shangle™

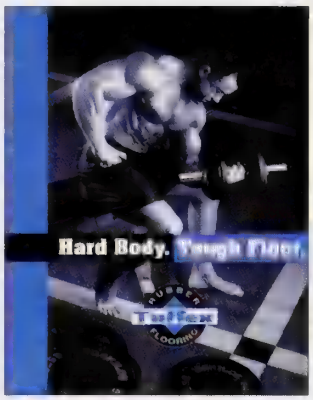


Utilizes CertainTeed's exclusive Super Shangle® construction with two full-size base shingles, resulting in four layers of shingle protection and 8-inch exposure when applied. This super-heavyweight fiber glass shingle (355 lb per square) also features a unique chamfered cut for scalloped appearance. UL Class A; lifetime limited, transferable warranty; algae-resistant; UL Certified to meet ASTM D 3462.

CertainTeed

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New Natural Flooring Catalog



Order the latest catalog from Tuflex Rubber Flooring on featured products Titan and Spartus flooring (an economically-priced line). The flooring is made of natural materials, is the only rubber flooring that is vulcanized and recycled, exceeds ADA standards for safety, and resists stains, chemicals and abrasions. For information on stock colors or custom capabilities, please call the factory at 800-543-0390. www.tuflex.com info@tuflex.com

Tuflex

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R-MerLite Insulated Steel Roofing

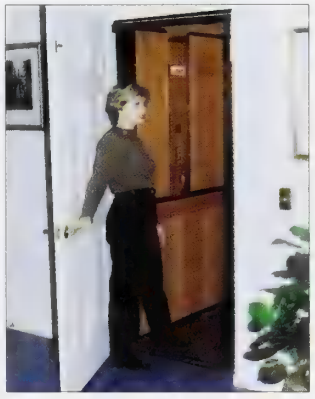


The Garland Company, Inc. is the exclusive supplier of the R-Mer Lite® Insulated Steel Roofing System. With nearly 30 years of proven performance, R-Mer's Lite's® advanced steel technology, optimum coating design and excellent life-cycle savings equal a system engineered for long-range endurance. The system is mechanically fastened and can be installed over almost any existing roof without added ballast. Factory Mutual Class 1-90 approved. www.garlandco.com

The Garland Company, Inc.

CIRCLE 169 ON INQUIRY CARD

Concord Kwiklift Elevator

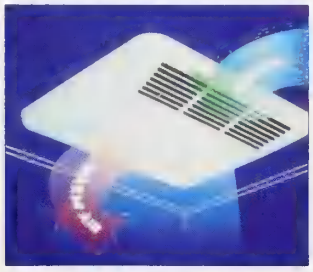


Concord's Kwiklift is a residential elevator designed to provide an economical means of vertical transportation in multilevel homes. Kwiklift's reliable, quiet, smooth operation is ensured by our innovative hydraulic drive system. A variety of finishes & colors allow you to customize its look to meet any job design. Our focus is on quality, reliability, & attention-to-detail. When you choose a Kwiklift Elevator you can feel confident that you are selecting the best residential elevator on the market.

Concord Elevator

CIRCLE 170 ON INQUIRY CARD

Advanced Ventilating Fans

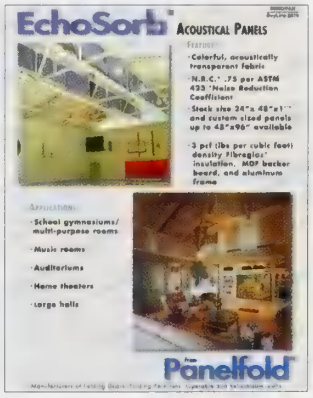


Panasonic Advanced Ventilating Fans combine super quiet operation with low energy consumption & long motor life to answer today's indoor ventilation needs. Easy to install. Panasonic Ventilating Fans produce low noise levels ranging from 0.3 to 2.5 sones. Panasonic Fans are HVI certified & carry the ENERGY STAR label. Panasonic's new WhisperWarm™ Fan combines ventilation, heat, light and a night-light in one unit. 866.292.7292 Fx: 800.553.0384 www.panasonic.com/building

Panasonic

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New EchoSorb® Acoustical Panels

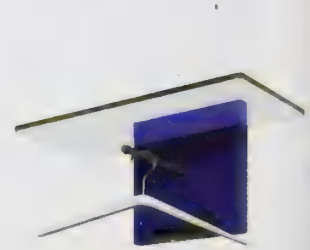


Absorb those annoying speech distorting reverberations in large spaces. Panelfold, Inc., manufacturers of space division products, introduces EchoSorb® .75 NRC acoustical panels. Stock 24" x 48" panels are available in 4 standard colors. Other colors or panel sizes may be specially ordered. Brochures and fabric color selectors available upon request by Fax: 305/688-0185 or E-mail: sales@panelfold.com. Visit our website: www.panelfold.com

Panelfold

CIRCLE 172 ON INQUIRY CARD

TWIN Hat & Coat Rack



The TWIN Hat & Coat Rack features a glass shelf with hanger bar and hooks. The back is available in aluminum silver or bright blue finishes. The TWIN is part of the Artform® Collection, which offers a wide range of premium materials and finishes. From simple coat hooks to combination coat racks, our sculptured pieces offer superb craftsmanship and innovative designs. 310.639.0390 Fax: 310.639.6013 www.peterpepper.com

Peter Pepper Products, Inc.

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Heat Reflecting Glazing



Primalite™ Polycarbonate Heat Reflecting Glazing features an exclusive filter layer that selectively reflects a large portion of near infra-red radiation, covered by a tough, protective UV-absorbing external layer. Available in a variety of sizes and styles, Primalite sheets carry a 10-year non-prorated warranty. More information is available at www.polygalusa.com

Polygal USA, Inc.

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COVERMATE™ Converts a Gym for Multi-Use Purposes

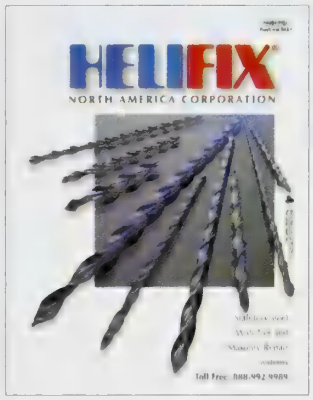


COVERMATE™ is a mobile, floor cover handling and storage system designed to quickly convert a gymnasium by installing a temporary protective floor cover to allow non-athletic use. Handling is even easier with the POWERMATE™ power winder and COVERCLEAN™, a patented brush system that sweeps the cover during take-up. For more information and a video, call 800-387-5808, fax 416-742-6837 or visit www.covermaster.com

Covermaster Inc.

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Stainless Steel Retrofit Wall Tie System



The unique Helifix 'DryFix' stainless steel remedial wall tie system is used to stabilize and strengthen masonry walls in both high rise and domestic buildings. The 'DryFix' system involves no toxic chemicals or complex expander devices while providing a fast, cost effective, stress free result in most common building materials. Helifix ties may also be used in new construction and masonry refacing. Call 888-992-9989 for further information.

Helifix

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Keystone Ridge Designs, Inc. is the architect's choice for premier site amenities. Offering a full line of steel furnishings, we pride ourselves on exclusive designs and our patented powder coat finish, KEYSHIELD,™ that is unparalleled in the industry. Quality, craftsmanship, and dedication to your creative vision are the hallmarks of Keystone Ridge Designs. For more information please call 800-284-8208 or e-mail: KeystonRdg@aol.com. www.keystoneridgedesigns.com

Keystone Ridge Designs

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Starphire Glass

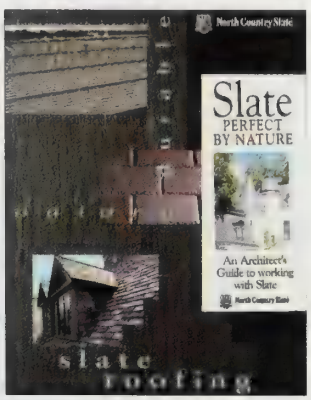


This design kit demonstrates why Starphire® glass is the clear choice for beautiful results. Vision, safety/security, spandrel, skylite, and interior glazings can sparkle from the jewel-like brilliance of ultra-clear Starphire glass. See for yourself why ordinary glass is green with envy: call 800-377-5267 to request a kit or a glass sample.

PPG Industries

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Slate Roofing



Natural North Country Slate®. For enduring character, nothing else compares. No wonder—it's perfected by nature! Free product brochure showcases the wide variety of sizes and colors, and comes with our Architect's Guide to working with this remarkable roofing material.

North Country Slate®

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Xtreme Recycled Resilient Rubber Flooring



It's Xtreme 100% recycled resilient rubber flooring from Dodge-Regupol. Take your pick from 38 enviro-friendly eye-poppers. And we can custom cut logos or custom blend colors. Color it special with ECOsurfaces! Call toll free 1-877-ECO-SURF (326-7873) or log on to www.regupol.com.

ECOsurfaces™

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The Gage 700 Series



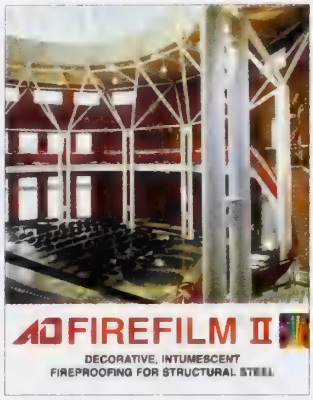
The new standard for perforated metal ceilings. Gage introduces its new 700 series of perforated metal ceilings manufactured from 50% recycled aluminum. Standard designs include five distinctive finishes and 14 different perforation patterns. Selective and custom designs are also available. Contact the Gage factory for literature and samples. 800.786.4243, 803 South Black River St., Sparta, WI 54656 USA, 608.269.7447, Fx: 608-269.7622 www.gageceilings.com

Gage Corporation

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Advanced Glazings, Ltd.

CIRCLE 183 ON INQUIRY CARD

Architectural Bird Control

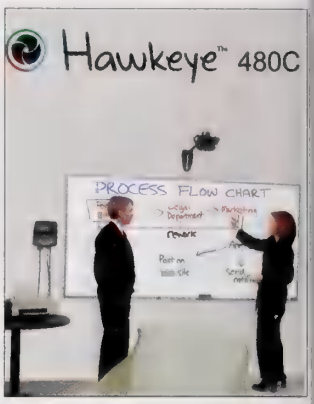


Effective, inconspicuous and humane Nixalite stainless steel bird barriers are now available with blunt or sharp points. Nixalite can be installed almost anywhere a bird can land to prevent bird damage. EnduraNet bird netting is a discrete knottless net that simply prevents birds from accessing protected areas. With over 51 years of bird control experience, Nixalite will assist you with any bird control problems. Free samples & catalogs are available. 800-624-1189 or visit www.nixalite.com

Nixalite® of America Inc.

CIRCLE 184 ON INQUIRY CARD

Hawkey 480C

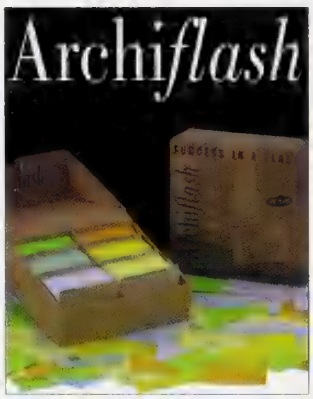


Hawkeye 480C is an optical whiteboard capture system that enables anyone to take a snapshot of notes written in regular dry-erase marker on a whiteboard surface. It works with any regular whiteboard and does not require any special tools or pens. Hawkeye uses a specially designed three-camera boom that attaches to a wall and captures a color image of any whiteboard. The Hawkeye Control Unit processes the photo and displays the image.

SMART Technologies

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Nalsa, Inc.

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Hot Off The Press

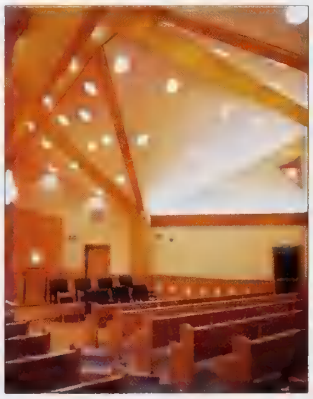


Since 1927, plastic laminate has been recognized for its contemporary design, durability and cost/value over alternative options. VT Industries Inc., is offering a free special report that examines the development, advantages and surge in popularity of decorative laminates – once described by Time magazine as the "material of a thousand uses." Call VT Industries today to ask for the free special report at 800-827-1615, ext. 210.

VT Industries

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Acoustical Stretch Ceiling System

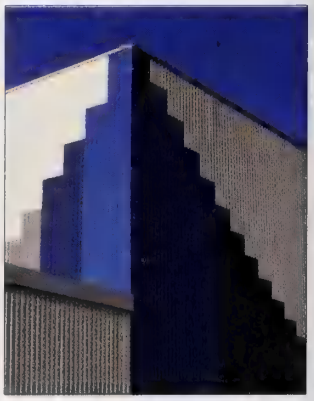


The Eurospan System is a wide span acoustical treatment with a smooth, white, monolithic appearance. With NRC values from .75 to 1.00, Eurospan has excellent acoustical absorption. Use the Eurospan System for flat or vaulted ceilings, domes, barrel vaults, and clouds. Perfect for new construction or renovation. Further information: (800-359-3312); www.euro-span.com

Wall Technology

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Now, Insulated Metal Panels from Thyssen Bausysteme



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ARCHITECTURAL EMPLOYMENT

By Elena Marceso-Moreno

Architecture firms were benefiting from a healthy economy as recently as last year. Low interest rates and readily available funding helped fuel a boom in building development by private and public sectors for close to eight years. Design firms were desperate to fill vacant positions, and architects could literally pick their employers.

Although the crazy pace of hiring has slowed a bit, it hasn't stalled at all. Firms of every size are hiring architects at all levels of their organizations. There are jobs for architects at many universities and a number of large corporations like Gap are competing with architecture firms for design talent.

According to Kermit Baker, Chief Economist for the American Institute of Architects (AIA), most AIA components report healthy business conditions in the areas that they serve, but a majority says that the economic environment has changed from a year ago. Robert Murray, vice president of economic affairs for McGraw-Hill, agrees. "The near term impact will be negative for both the economy and the construction industry," he said. The biggest change will be in the types of projects being designed, as the emphasis shifts from office and hotel construction toward institutional and laboratory building projects. "The stage has been set for renewed expansion to take hold in 2002 and 2003," says Murray.

Many architects say they are still busy, have backlogs, and are hiring selectively.

Yet despite the slowdown in general business activities, many architects say they are still busy, have backlogs, and are hiring selectively. John Kreiss, the principal in charge of executive search for management consultants Zweig White, Natick, Mass., says "One-third of design firms are doing very well, one-third are holding their own, and another third are seeing their business slackening off. Architecture firms are still hiring, but now they are talking to four or five good candidates for every job. As employers, they are being more selective than they were a year or two ago. "Things are getting back to normal, he said, and firms are looking for real talent to fill staff positions. Good architects will always find work," he said.

Robert Packard, Associate AIA, managing partner for Zimmer Gunzul Frasca Partnership, Portland, Ore., and the incoming chairman for the AIA's Large Firm Roundtable says that when the large firms met in October, most reported a flattening in the hiring curve. Those firms that are hiring are looking carefully for the right person, with the right aptitude and the right attitude, he said.

"URS is always hiring. We are a very large firm, with 16,000 employees. As a publicly held company, we are challenged to continually grow. That means we need to obtain new employees and retain the ones already on staff."

"After two quarters of relatively flat levels of hiring in the first half of 2001, we at Zimmer Gunzul Frasca were making plans to add staff at most of our offices," he said, but the firm has decided to go slow right now, and re-evaluate how they use their resources, moving people around to where the work load is, and also supplementing some teams by working electronically from distant locations, Packard said.

Packard doesn't see the hiring situation changing anytime soon. He projects that workloads for his firm and many of the other members of the Large Firm Roundtable will be flat, or possibly dip a little, over the next 18 months.

"We are hiring," said says Charlie Rodenfels, AIA, regional manager for URS. And hiring in a big way. "URS is always hiring. We are a very large firm, with 16,000 employees. As a publicly held company, we are challenged to continually grow. That means we need to obtain new employees and retain the ones already on staff. Right now we are hiring between 500 and 600 people. With a target of 10 percent growth, we need to add about 1,600 new employees a year."

Kenneth Catton, principal and CEO of Baldauf Catton Von Eckartsberg Architects in San Francisco. Catton and his partners started their firm four years ago, and rapidly expanded. Today their staff numbers 33, and the firm has just hired two more people this month. "We are getting a lot of applications now." He is seeing more applications than last year, and quite a few more than the year before, when there were not enough architects available to hire. He is always looking for "good" people because he values talent and dedication. "If a good architect, at any level of experience, walked into the office today, we'd definitely hire that person, even if we didn't know what he or she would be working on."

Judy Mitchell, associate principal with Tsoi/Kobus & Associates, Cambridge, Mass., also says that her 136-person firm will hire people with talent at any time, although the firm is not actively looking to expand its staff right this minute. While the emphasis has shifted away from commercial and some other project types, Mitchell says "We have a reasonable backlog, but we are being prudent and conservative about hiring right now." Recently her firm's emphasis has shifted a bit. In the last few years, Tsoi/Kobus was particularly busy with commercial projects, but now Mitchell says their academic projects, from K-12 to college buildings, are increasing in number.

Jim Pulvert of Middlebury, Vt.-based Breadloaf Corporation says that architecture as a profession is not fixed, and that practitioners have the opportunity to redefine it every day. As a design/build firm, Breadloaf needs architects who are good designers, really understand construction, are good communicators and leaders, and are willing to adapt. Pulvert is actively recruiting for his staff, and he has been for the past six years. "It is hard to find really talented architects with all these talents."

Talent Search

For close to a decade, design firms have been challenged to find "the best and the brightest." The tight labor market of the recent past made it all but impossible to find the number of talented architects most firms were seeking. Many report they just hired any architects they could find. And they know in some cases mistakes were made.

Executive search consultant Donna Gaines of Gaines International of Chicago who places architects at the management level says that the number of positions she is actively seeking to fill have dropped off since last year, but there are still a healthy number of architecture jobs open. But now she and the firms she deals with are being more demanding of prospects and much more selective. "Less than two years ago unemployment rates were under 4 percent in all sectors, but in architecture they were under 2 percent, and in some markets architecture unemployment was negative, meaning there were more jobs than architects to fill them," says Gaines. But now there is a greater balance between the jobs available and the number of architects seeking them.

Gaines and principals from many architecture firms agree that the biggest demand for new employees in the industry is at the mid-management level, for architects with seven, eight, or more years of experience. "There are just not enough of them. They are all working and making good money," says Gaines.

Principals from many architecture firms that agree that the biggest demand for new employees in the industry is at the mid-management level.

She also has openings to fill for project architects, but she sees a profession-wide shift in need from the younger architect with only a few years experience on the job, to more experienced and more expensive managers. Gaines says there are a large number of firms seeking architects at the highest levels—those who can join a firm as a principal.

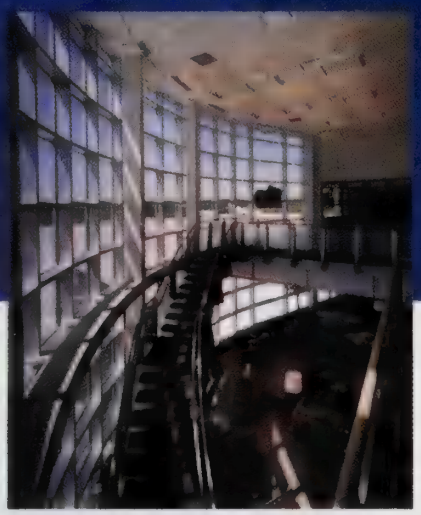
"I have clients looking to hire principals who can come in and right away grow a new market segment for the firm. Many of them bring along a staff of other architects, and often these new principals also bring one or two projects along with them," Gaines says.

Zweig White's Kriess suggests that a good way to find the most talented architects is through networking. Firms can make use of trade and professional journals, ask contractors for names of good people, talk to the AIA, and ask your best employees who they would recommend.

Compensation and Benefits

Architecture firms took a second look at how they managed themselves, the salaries they paid, and the benefits they offered during the frenetic hiring period that is now slowing to a more normal pace. They began to realize that design talent was being lost to better paying industries, such as high-tech and entertainment. Compensation went up, continuing education became the norm, and profit sharing and ownership were offered to new employees and some of the more talented staff already onboard.

While these benefits, particularly compensation, are not likely to expand rapidly anytime soon, neither will



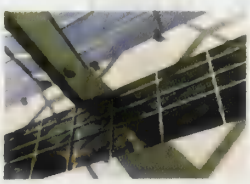






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The School of Architecture at the University of Notre Dame, which celebrated its 100th anniversary in 1998, invites applications and nominations for the position of chairperson of the School of Architecture. The chairperson reports directly to the University's provost. The effective date of this appointment will be July, 2002.

The Notre Dame School of Architecture is internationally recognized for its strength in traditional and classical design in architecture and urbanism, and is the oldest architecture school at a Catholic university in the country. This strength is reflected both in the accomplishments through research and scholarship of the faculty and in the teaching quality demonstrated in the school's undergraduate and graduate programs. The school has been awarded two new endowed professorships and is located in a landmark building that recently underwent a $12-million expansion and renovation. In addition, the school's Rome Studies Center is housed in its own building near the Pantheon and Piazza Navona in the city's Centro Storico. The center is equipped with studios, classrooms, a library, exhibition facilities and administrative offices, and was extensively renovated in 1989. All third-year undergraduates spend the full academic year in Rome.

The undergraduate curriculum is a five-year program leading to a first professional degree. The graduate curriculum is a two-year program that encompasses both a first professional degree and a post-professional degree at the master's level. The graduate program is funded by endowments that provide stipends and full tuition to as many as 15 students annually.

The school seeks candidates with demonstrated leadership qualities and proven excellence in their academic and professional pursuits, and whose scholarship and practice engage with breadth of vision the theories of traditional and classical design that are the school's foundation. Successful candidates will possess professional and academic credentials appropriate for appointment as a tenured full professor.

The Search Committee will begin reviewing applications after January 31, 2002. Send nominations and applications to: Search Committee – School of Architecture Chairperson, Office of the Provost, 300 Main Building, University of Notre Dame, IN 46556.

The University of Notre Dame is a private, Catholic institution and an affirmative action, equal opportunity employer. The University strongly encourages applications from minority and women candidates.

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they be diminished during the current economic slowdown, say Packard, Catton, and Rodenfels. "I haven't seen much turnover in staff to start their own firms, recently," says Packard, and beyond the prevailing business conditions, some of that drop off in churn can be related to better benefits at most firms and increased opportunities for ownership. And ownership profiles are important in attracting some of the best architects. "I see more and more really talented women architects interviewing with our office. They tell me the only reason they will look at Tsoi/Kobus is because there are women at all levels of management," says Mitchell.

Where the Jobs Are

Even firms like URS, which are hiring large numbers of design personnel, have relocated people to locations where building activity has increased. For a few years, the office and retail markets were vibrant everywhere, but now the picture is changing. In the San Francisco Bay area and the Northern Virginia suburbs, both high-tech corridors with high vacancy rates, additional office space is not being planned. But in other regions, such as the Midwest, firm principals report better activity.

More consistent activity is seen in laboratories and R&D, the public sector, including defense and education, says Kreiss. And Gaines says that biotech and healthcare are the two areas where she sees the most demand for architects, with a lesser, but still strong emphasis on academic buildings.

Regardless of the type of building specific activity, Packard and Rodenfels say that there are jobs at every firm, regardless of size, as more managers take a hard look at their current staff and evaluate their performance. Rodenfels says, "Like other firms, we are constantly reassessing the talent we have. The current economic (climate) means that it is the perfect time for real talent to rise to the occasion. It is a good time for the leaders to separate themselves from the pack. The time for employee performance is now."

"It is naive to assume that there is any relief from looking for good talent. That is an activity that goes on all the time. It is what architecture is all about."

According to the Bureau of Labor Statistics' Occupational Projections, there will be 118,000 architects working in 2008, an increase of 20 percent from the number a decade earlier. Depending on the economic cycle, this could be good for firms and architects alike. Packard says, "It is naive to assume that there is any relief from looking for good talent. That is an activity that goes on all the time. It is what architecture is all about." ■

PROFILE

URS CORPORATION

Headquartered in San Francisco, URS serves its worldwide clientele from 300 offices in 38 countries. URS is one of the world's largest architectural, engineering, and construction management companies, with a staff of 16,000 architects, engineers, planners, scientists, and program and construction managers.

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URS currently has job openings worldwide. Because of its broad diversity of projects, the positions available range from entry-level positions to senior technical or management positions. Job opportunities include positions for architects/designers, and urban planners; civil, transportation, electrical, mechanical, environmental, seismic, and civil-geo-technical engineers; landscape architects; CADD technicians/designers; construction managers; and environmental planners.

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The Department of Architecture is a major academic unit in the College of Architecture and Planning along with the Departments of Landscape Architecture and Urban Planning. With a strong reputation for curricular innovation, sustainability, and international programs, the department is involved in many activities that promise to develop it in important and exciting directions. The department has been acknowledged for its various teaching and learning initiatives through multiple AIA Education Honor awards. The CAP Indianapolis Center, an urban satellite for the college, is one example of our exploration of new learning opportunities for our students and faculty. Along with the professional degree sequence in Architecture, we offer a Master of Architecture (M.Arch.II) post-professional degree and a Master of Science in Historic Preservation (MSHP) degree. Contained within the college facility are vital research centers, including the Building Futures Institute, the Land Design Institute, the nationally recognized Community-Based Projects program, and the nationally recognized Center for Energy Research, Education, and Service.

Located in Muncie, an east-central Indiana city of 70,000, Ball state University is a comprehensive institution serving approximately 18,000 students. Encompassing a broad range of undergraduate and graduate programs, BSU is well known for its emphasis on the teacher-scholar model. The university has exceptional athletic and cultural facilities and programs that contribute to its rich learning environment. The Department of Architecture enjoys the privilege of being the only publicly funded architecture program in the state. Additionally, the department benefits from close collaboration and support from a strong professional and alumni base throughout Indiana. The campus is close to the cities of Indianapolis, Chicago, Louisville, and Cincinnati.

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PROFILE

THE UNIVERSITY OF NOTRE DAME

The University of Notre Dame is a Catholic academic community of higher learning. One of the University's goals is to provide a forum of free inquiry and open discussion where the various lines of Catholic thought may intersect with all the forms of knowledge found in the arts, sciences, professions, and every other area of human scholarship and creativity.

The mission of the School of Architecture at the University of Notre Dame is to make available the best professional training possible, at the undergraduate and graduate levels and also for post-professional degree studies. The School and teaching staff embrace both the created world and the world of human interaction in the arena of Revelation and Communion. They strive to form faculty and students alike into men and women who can bring insight to the built environment.

Notre Dame believes that in doing his or her work, the architect draws on God's gifts of reason and memory and the gifts and skills constituting the individual's unique endowments. The ability to articulate the rational basis for a design locates architecture in the realm of truth. And reason lifts architecture from the level of a merely personal act to that of a civic, cultural, ethical act and mediates between the legacy of tradition and the promise of innovation.

PROFILE

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The 37-year-old firm's distinctive work is fresh and contemporary and yet also draws on knowledge of history and context, creating original award-winning designs for projects worldwide. The firm has received over 140 design awards, including 10 national and over 60 state design awards from the American Institute of Architects. Michael Graves received the 2001 AIA Gold Medal, the 2001 Frank Annunzio Award, and the 1999 National Medal of Arts.

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ARCHITECTURE AT BALL STATE UNIVERSITY

Ball State University's Department of Architecture, part of the vibrant College of Architecture and Planning , recently celebrated its 30th graduating class. It has the only publicly supported architecture program in the state of Indiana. Within the college are associated departments of Landscape Architecture and Urban Planning.

The Department of Architecture has built a strong reputation in numerous areas including curricular innovation, sustainability and international programs. Teaching innovations have earned the department numerous AIA Education Honor awards. Recently, the focus on information technology and computers in design has intensified, and classrooms, studios, and residence halls are fully wired for high-speed networking and internet access. Laptop computers, which are mandatory for architecture majors, find application throughout the curriculum. Ball State was recently awarded a $21 million dollar grant to promote and implement high technology and i-communication on campus. Our state-of-the-art VIA Lab permits architecture students to explore exciting dimensions of visualization, imaging and animation.

The Department of Architecture offers a first professional degree (currently a B.Arch. program with an M.Arch. I commencing Fall 2002), a Master of Science in Historic Preservation, and a Master of Architecture II post professional degree. There are 25 full-time faculty, plus a number of adjunct faculty who come from architectural practices within the state. Among them are AIA/FAIA members, Ph.D.s, practicing architects, authors, artists, historians, and experts across a broad range of areas critical to the profession of architecture. This community of scholars are committed to an exploration of the future of architecture and architectural practice and to the meaningful contribution to our shared knowledge base.

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The College of Architecture at Texas Tech University invites nominations and applications for the position of Dean with the rank of Professor/Tenured. Responsibilities: Serve as the Chief Executive Officer for the College of Architecture; provide leadership for the direction and implementation of the vision, mission and the strategic plan for the College of Architecture; provide oversight of professional accreditation requirements and reviews; coordinate and manage fund- raising and development activities; facilitate communication among faculty, stu-

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UNIVERSITY OF MISSOURI-ROLLA FACULTY POSITIONS

The Department of Civil Engineering at the University of Missouri-Rolla (UMR) invites applications for a full-time position with an emphasis in architectural engineering. Both tenure-track and non-tenure track appointments will be considered based upon the experience and background of the applicant. The start date for this appointment is anticipated to be August 2002. The successful candidate should be able to teach architectural design coursework related to the theories of building and site design, technology as an integral component of design, plan and spatial organization, structural clarity, formal composition, and models associated with detailed development and implementation with an emphasis on building construction as a form determinant. The minimum requirement for the position is a Bachelor of Architecture degree from an NAAB (National Architectural Accrediting Board) accredited architectural program. For a tenure-track position, an MA and a PhD in Architecture or Architectural Engineering are required. While the appointment is anticipated to be at the assistant professor level, higher ranks may be considered for outstanding candidates. A joint appointment with the College of Arts & Science at UMR is also a possibility. Prior architectural design teaching experience with architectural engineering students, as well as practical design experience, is desirable. A major responsibility of the successful tenure-track candidate will be to obtain sponsored research and direct research activities for graduate students at the masters and doctorate levels. To be considered for a non-tenure-track position, extensive architectural design and industry experience is required, as well as an appreciation for and an understanding of academic engineering programs. AIA registration is required of all candidates; candidates not yet registered are expected to do so within three years of appointment. The successful candidate will be expected to be actively involved in interdisciplinary activities across the campus, including participating in master planning for the University. Demonstrated ability in superior communication and interpersonal skills, as well as leadership capabilities and the ability to motivate and inspire students are required attributes. Additional information about the university and the department can be found at http://www.umr.edu/~civil/. Applications received by January 31, 2002, will receive first consideration. Applications should be submitted with a statement of interests and goals, a complete curriculum vitae, and names of three references, including complete contact information, to: Human Resource Services; Reference Number: R53621; University of Missouri-Rolla; 1202 North Bishop; 1870 Miner Circle; Rolla, MO 65409-1050. Women, minorities, and persons with disabilities are encouraged to apply. The University of Missouri-Rolla is an AA/EEO employer and is responsive to the needs of dual-career couples.

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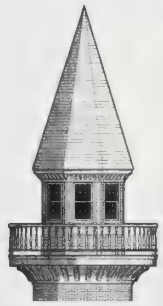
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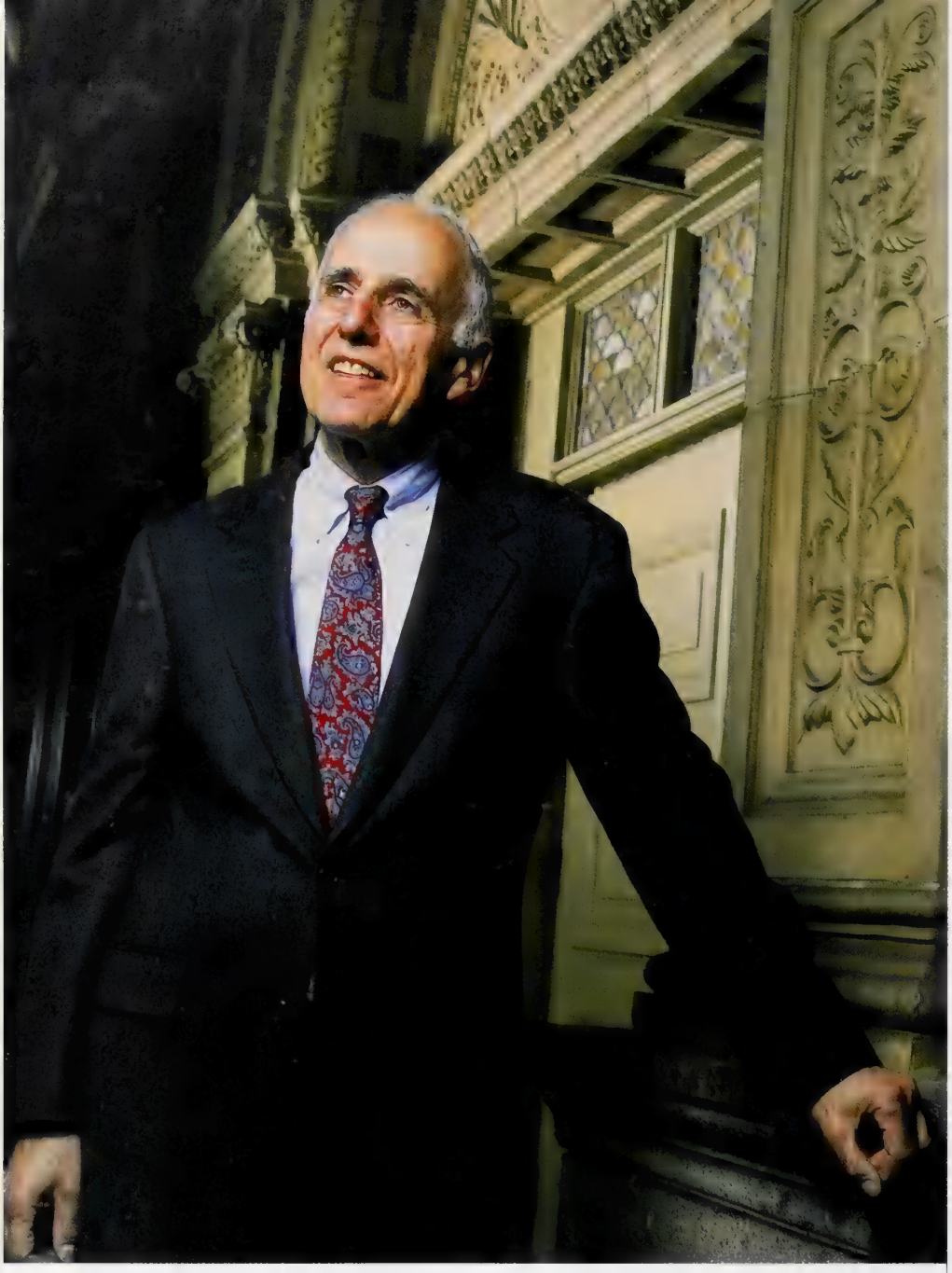
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Robert Silman: Reengineering the historical

Interviewed by Clifford A. Pearson

Like an orthopedic surgeon revered by the elderly, Robert Silman has reset the bones of some great old buildings: Carnegie Hall, Ellis Island, Radio City Music Hall, Wingspread, and Fallingwater. A structural engineer who studied architecture for one year and later worked for Ove Arup in London, Silman opened his own office in New York in 1966 just as the preservation movement was emerging as a force on the urban landscape. Although his firm designs new structures (mostly for institutional clients such as schools, hospitals, and churches), it has worked on more than 250 designated landmarks, devising ways of repairing them without altering their essential character.

Q: *Before we talk about preservation, tell me briefly about your work at the World Trade Center site.* We are just one part of a group effort organized by the Structural Engineers Association of New York, in which 30 firms are helping out. Each firm sends over a three-person team for a 12-hour shift every couple of days. It's very scary. We need senior people there because they have to make immediate decisions that could mean life or death for the rescue workers.

How did you decide to become a structural engineer? I read an article by Peter Blake in *Architectural Forum* sometime around 1957, in which he discussed the dearth of creativity in structural engineering in the United States. The point of the article was that we didn't have anyone in the U.S. on a par with people like Nervi in Europe. I took it as a challenge. It inspired me. So I went back to school at night and got my degree. In the '60s when I was at Ove Arup's office in London, I worked on the British Embassy in Rome and got the chance to work with Nervi and his sons. Nervi was a remarkable man.

How did you get into preservation work? When I started my firm, I took a lot of jobs rehabilitating tenements in the South Bronx and Brooklyn. Then in 1971, Jim Polshek asked if I would help out with Carnegie Hall, with fire egress. It wasn't glamorous work. Most engineers had no interest in these kinds of projects. Everybody wanted to do high-rises. When I got started, there weren't any university programs in historic preservation. So everything I learned about preservation, I learned on the job.

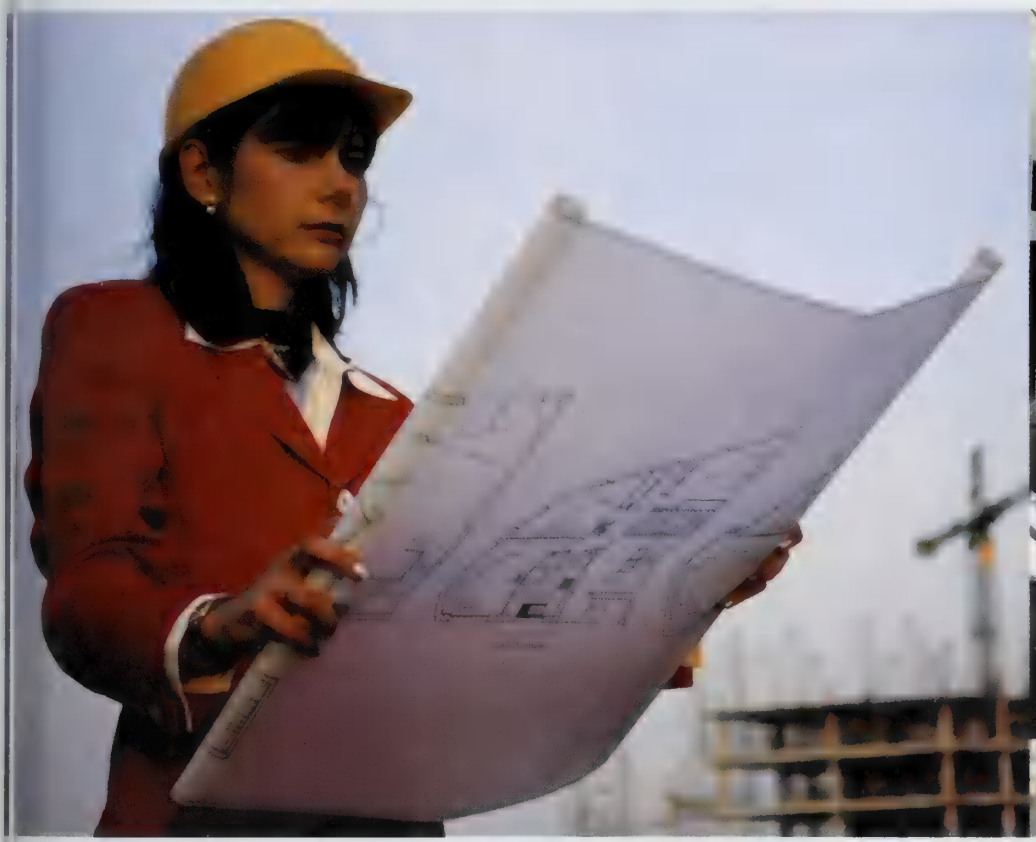
Does your work on new buildings influence your preservation jobs? We apply a lot of new technologies in our preservation projects. Some of that involves diagnostic technologies—radar, magnetic detection, infrared thermography, fiber optics. But I'm not afraid of using new materials in historic buildings. At Wingspread [a Frank Lloyd Wright house in Racine, Wis.] we used carbon fiber [as a protective interstitial layer] in the roof. No one can see it. But it wasn't part of Wright's design. So I asked a director at Taliesin what he thought. He said, "If carbon fiber were around when Mr. Wright lived, you can be sure he would have used it."

What about the notion of authenticity in historic buildings? We try to get at the original intent of a designer and preserve what Walter Benjamin called a building's "aura"' If you maintain that, it doesn't really matter if there's an unseen layer of carbon fiber or extra steel in the concrete. I'm even a fan of moving historic buildings to preserve them. For example, we moved the Empire Theater 175 feet farther west on 42nd Street. It remained on the same block and didn't lose any of its sense of authenticity. ■

Photograph by André Souroujon

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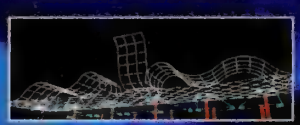
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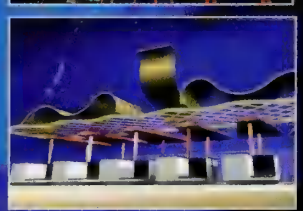
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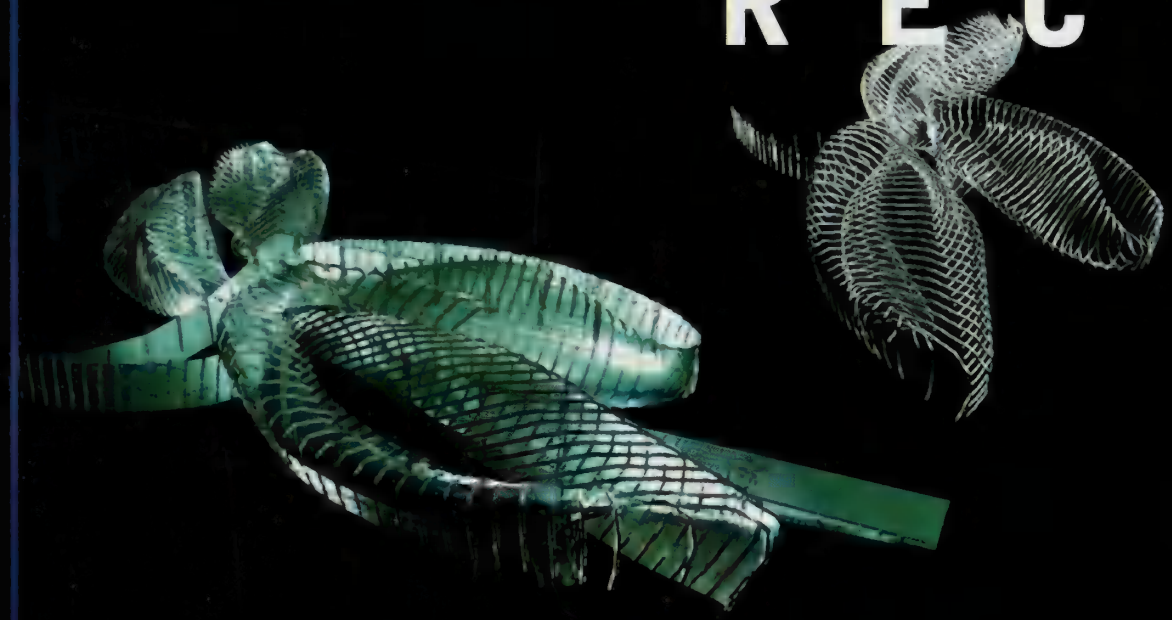
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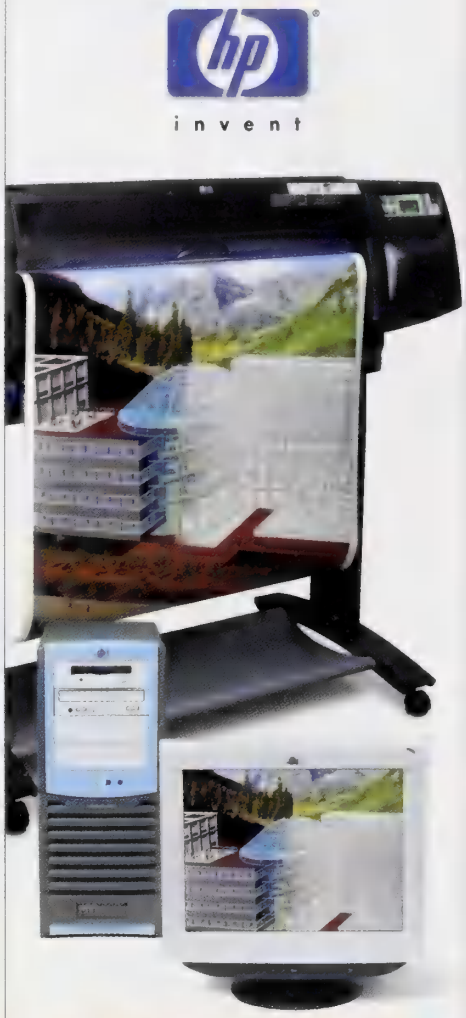


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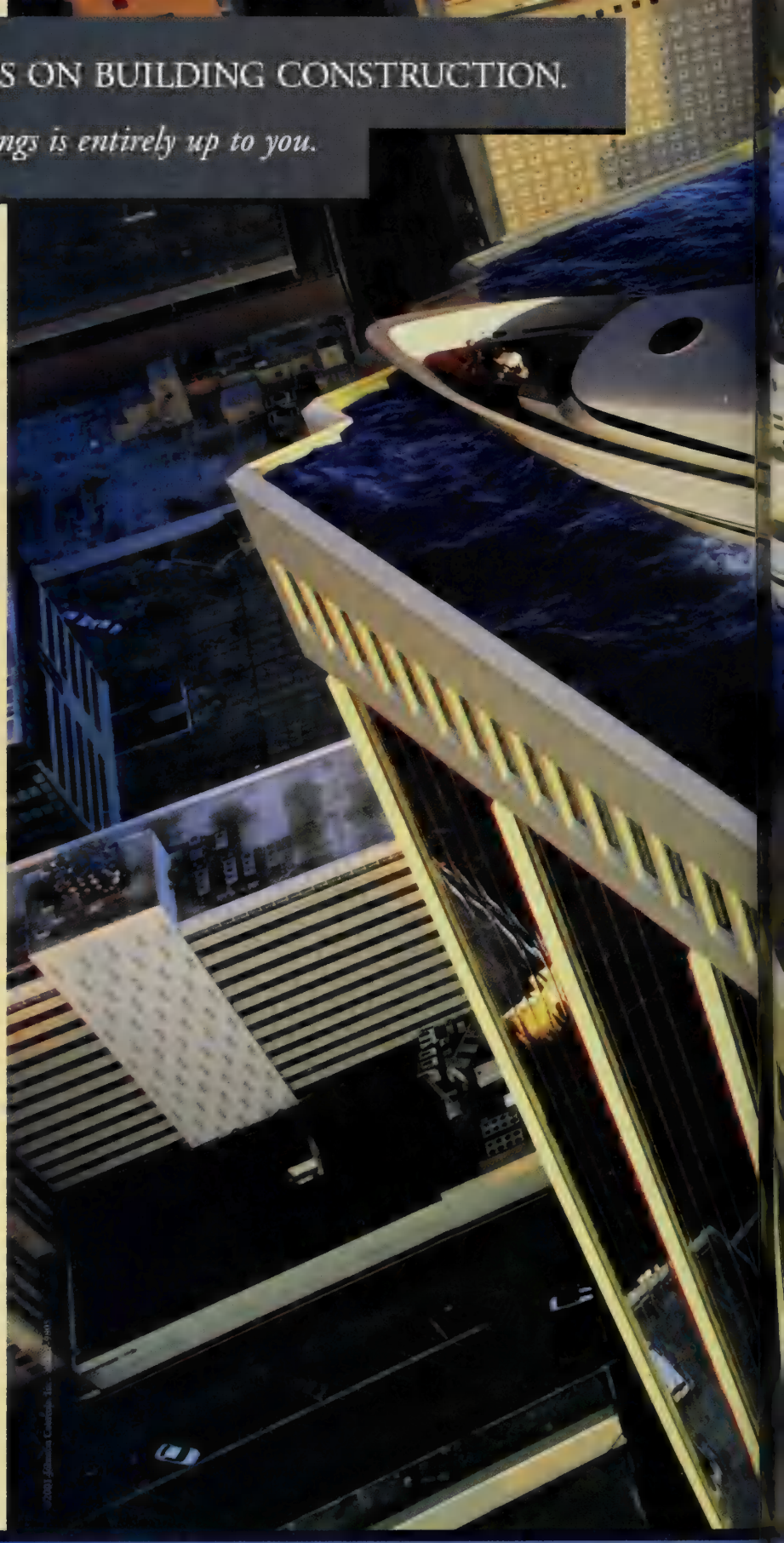
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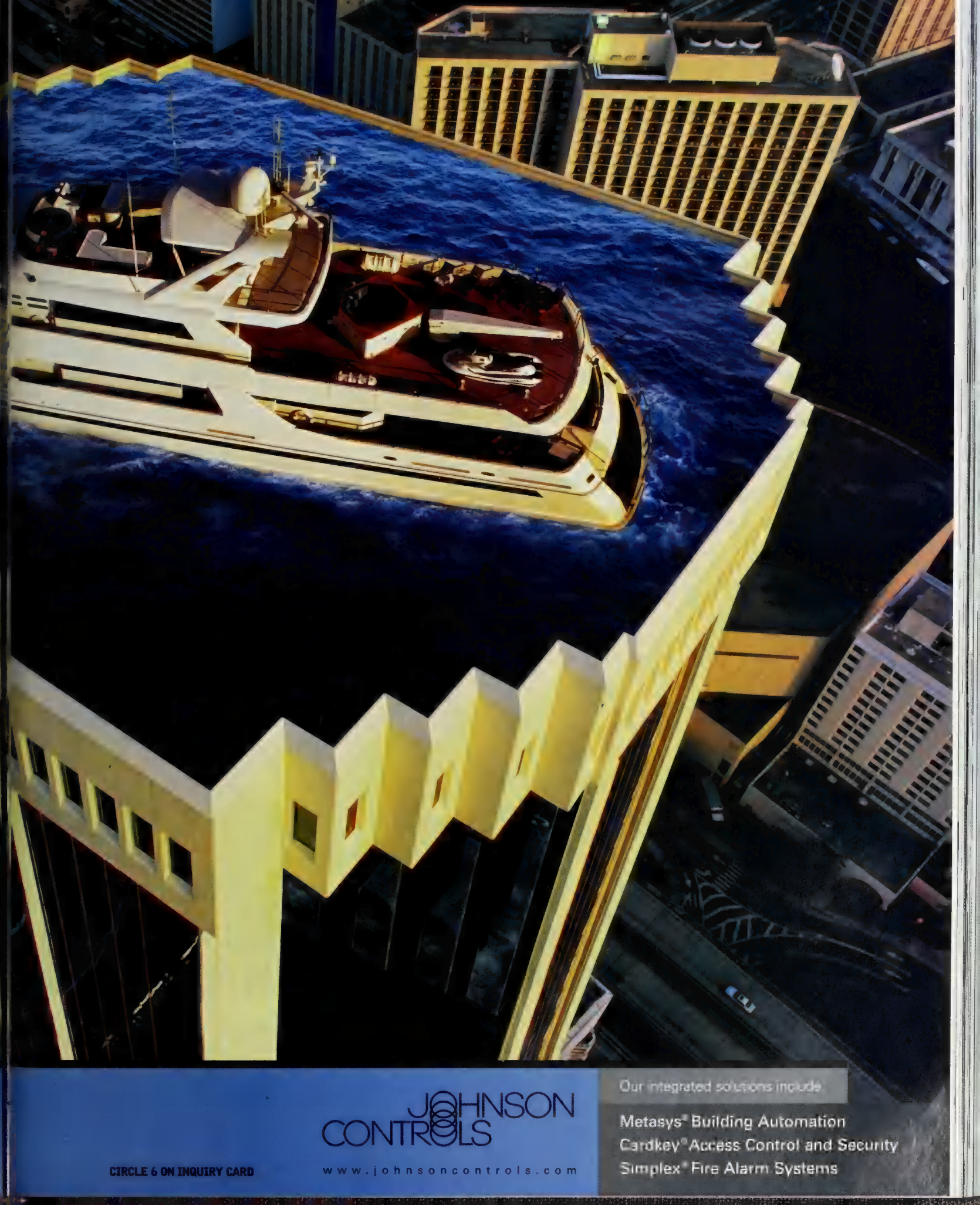
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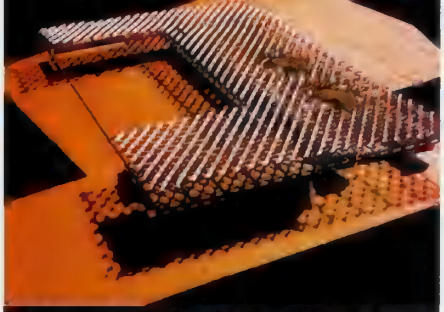
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This year's nine Design Vanguard architects share a knack for the latest tools, and a tendency to push the envelope, as seen above in this rendering by Lang Wilson PAC.

On the Cover: *Computer rendering by Hernán Díaz Alonso, Xefirotarch, for the Queens Museum, Queens, N.Y.*
Right: *Rendering by Lang Wilson PAC for the Colegio Chuquicamata, Calama, Chile*

News

21 SPECIAL REPORT: **The skyscraper is here to stay**

24 **The AIA continues with its financial recovery plan**

WWW For continuous updates on the developing story at the World Trade Center, go to ***www.architecturalrecord.com***.

Departments

15 **Editorial: Where do we go from here?***

17 **Letters***

34 **Dates & Events***

37 **Critique: The best WTC memorial** *by Robert Campbell, FAIA*

41 **Books: Current architecture**

45 **Snapshot: The Oca** *by Clifford A. Pearson*

214 **Profile: Ayse Birsel** *by Josephine Minutillo**

Projects

51 **Design Vanguard 2001** *by Clifford A. Pearson**
Our second annual group of emerging ones-to-watch, this year's nine Design Vanguard architects prove that risk is right.

52 **Lang Wilson PAC Culture, *Vancouver*** *by Clifford A. Pearson**

56 **David Guthrie Design Workshop, *Houston*** *by Charles Linn, AIA**

60 **Shuhei Endo Architect Institute, *Japan*** *by Naomi R. Pollock, AIA**

64 **Xefirotarch, *Los Angeles*** *by Ingrid Whitehead**

70 **Richard & Bauer, *Phoenix*** *by Suzanne Stephens**

74 **SYSTEMarchitects, *New York City*** *by William Weathersby, Jr.**

78 **Escher GuneWardena Architecture, *Los Angeles*** *by Sara Amelar**

82 **Studio Gang/O'Donnell, *Chicago*** *by John E. Czarnecki, Assoc. AIA**

86 **Ofis Architects, *Slovenia*** *by Clifford A. Pearson**

Building Types Study 804

91 **Essay: Universities** *by Clifford A. Pearson*

92 **Nanyang Polytechnic, *Singapore*** *by Clifford A. Pearson**
Gwathmey Siegel & Associates

98 **Perelman Quadrangle, *Philadelphia*** *by Suzanne Stephens**
Venturi Scott Brown and Associates

102 **EGADE, *Mexico*** *by Elizabeth Kubany**
Legorreta + Legorreta

For 10 additional university projects, go to Building Types Study at ***www.architecturalrecord.com***. The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

Building Science & Technology

107 **Plastics Finally Get Respect**
*by Barbara Knecht**
A new generation of plastics is emerging as a material of choice.

Digital Practice

121 **Introduction**

123 **Digital Briefs**

127 **How Architects Use the Macintosh** *by Louis B. Smith, AIA*

135 **Digital Architect** *by Jerry Laiserin, FAIA*

139 **Software Reviews**

Product Reports

142 **Introduction**

144 **Editor's Picks**

147 **General Data**

151 **Sitework, Concrete & Masonry**

153 **Metals, Woods & Plastics**

157 **Thermal & Moisture Protection**

159 **Doors & Windows**

163 **Finishes**

169 **Specialties**

171 **Equipment**

173 **Furnishings**

179 **Special Construction & Conveying Systems**

181 **Mechanical**

185 **Electrical**

13 **What's at architecturalrecord.com**

196 **Reader Service***

198 **Manufacturers' Spotlight**

208 **AIA/CES Self-Report Form***

210 **Classified Advertising***

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WWW * You can find these stories at ***www.architecturalrecord.com***, including expanded coverage of the work of the nine Design Vanguard architectural firms featured in our Project section this month.



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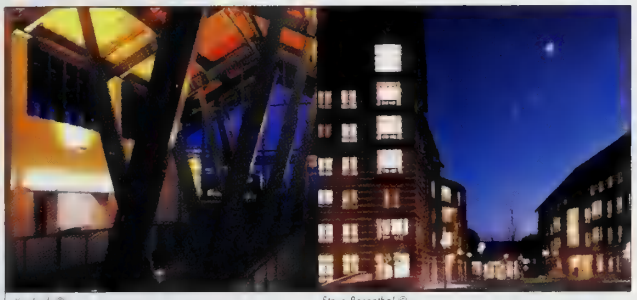
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Interviews



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Audio clips of interviews with **Hernán Díaz Alonso of Xefirotarch**, along with other young architects featured in the magazine.

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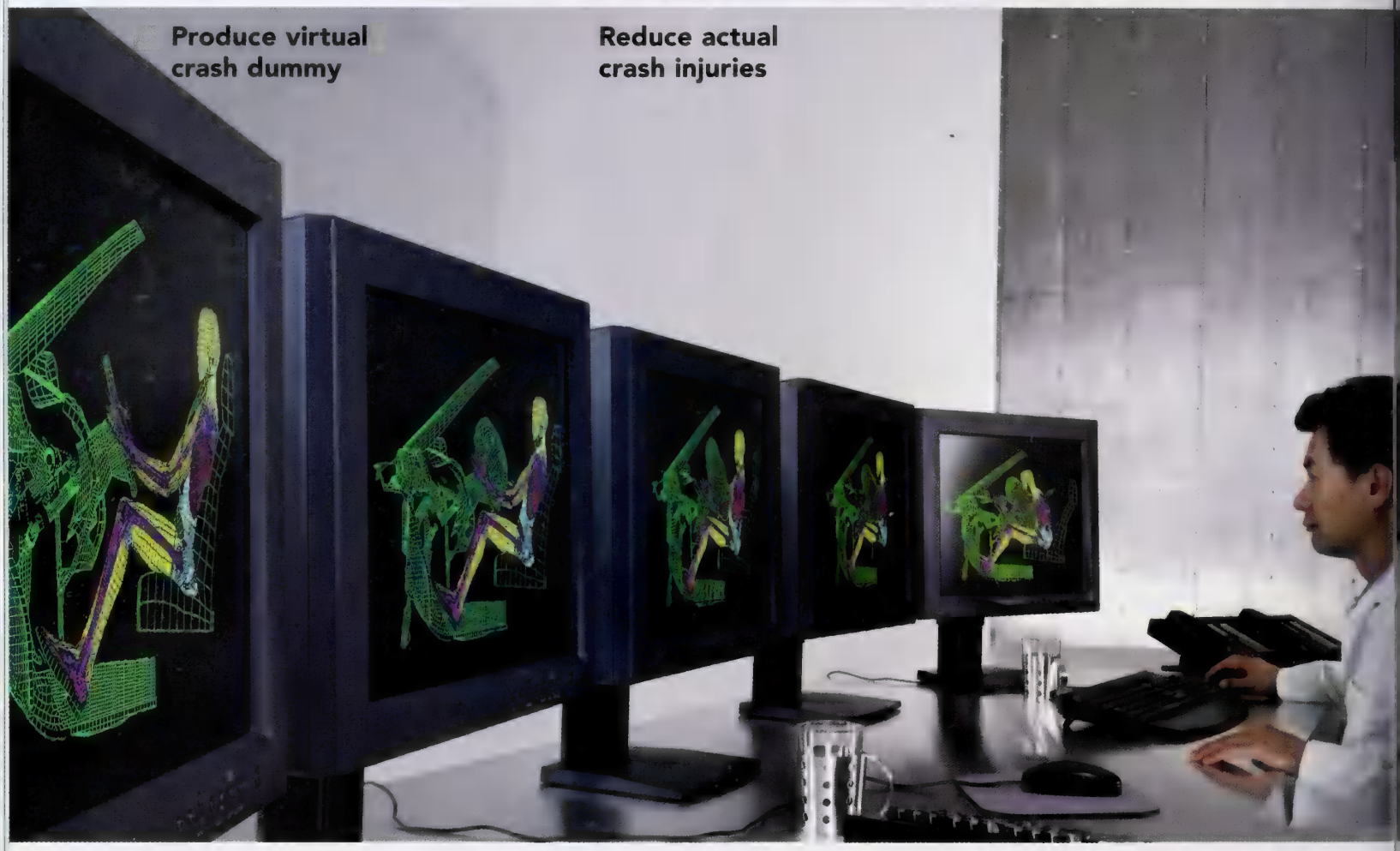
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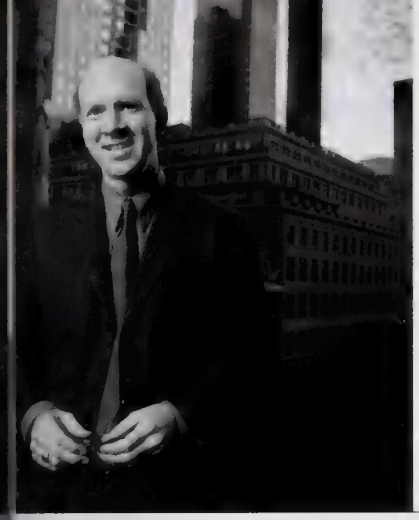
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Where do we go from here?

Editorial

By Robert Ivy, FAIA

September 11 thrust us into the spotlight in unforeseen ways. While it may be premature to speculate on specific solutions for the World Trade Center site, the country seeks direction and vision, two qualities that architects can provide. Listed below are trends that can inform our debate and our plans, for New York and beyond:

Harnessing nature. *In an article in the* New York Times *magazine, William Pedersen, FAIA, proposed harnessing wind and solar power in tall structures. The rationale is obvious and timely: reducing our reliance on imported petroleum. At Baruch College, his firm has rethought an urban block, opening the interior of a high-rise campus from south to north, piercing its high vertical atrium with sunlight. Our challenge is to take buildings beyond sustainability to become productive, energy-making machines.*

Reclaiming damaged land. *There are some who are active in a movement of regeneration and hope for blighted environments, including the WTC site. Among these are the sculptor and landscape architect Julie Bargmann, who, with her firm D.I.R.T. Studio, is transforming abandoned toxic mining facilities and large industrial complexes, allowing the earth to wash itself clean.*

Enhancing productivity. *Urban towers such as Frankfurt's Commerzbank put office workers near light and air, opening up selected groups of floors for gardens in the sky.*

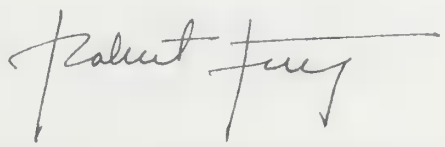
Greening the waterfront. *By more carefully controlling our ports and transshipment points, large areas of waterfront can be freed as parkland, suggests urban theorist Jonathan Barnett.*

Encouraging intermodal transportation. *We can design a world of easier links between the pedestrian, the automobile, buses, boats, and trains. According to the recently signed airline security bill, all baggage will be scanned in the future, which may slow check-in and increase travel time. Trains should benefit, says Barnett.*

Developing better building materials and systems. *Improved lamination or forming techniques and easier cleaning all point to new uses for glass. Almost single-handedly, Renzo Piano has revitalized the terra-cotta industry. The development of new materials like transparent foils, used by Nicholas Grimshaw at Britain's Eden project, permit lightweight, airborne structures.*

Increasing architectural research. *Some European firms set aside a part of their revenues for architectural research. In Philadelphia, architects Kieran and Timberlake translated a Latrobe grant from the College of Fellows of the AIA into a revolutionary dual glazing system.*

The time is ripe to rethink the faster, cheaper mentality that has dominated development work and reduced the character of public life. Enlightened discussion of good ideas like these can result in high-value buildings with increased performance and satisfaction, but only if we speak up, and speak out.



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Letters

Towers of babble

Hurray for Robert Campbell! His column in your October issue on ArchiSpeak [Critique, page 79] stuck a welcome needle in the balloon of verbal puffery so many architects seem to need to persuade others of their seriousness.

With the notable exception of Louis Kahn—a truly great artist who was as murky a writer as they get—the most verbose architects often produce the thinnest work, if they can get work at all. As Campbell points out, architecture schools do their students no favors by encouraging lingo at the expense of substance.

Perhaps architecture students should be required to read William Strunk and E.B. White's classic guide to clear writing, *The Elements of Style*. Two of the authors' basic recommendations are: "Avoid fancy words" and "Be clear."

I suspect Strunk and White would have got along fine with a pretty successful architect who, according to legend, proclaimed that "Less is more."

—Carter Wiseman
Via e-mail

The applause continues

Kudos to Robert Campbell for his excellent critique in October. I would like to thank Mr. Campbell for frankly drawing attention to a pervasive problem in architectural academia, and ARCHITECTURAL RECORD for printing it.

I agree with Mr. Campbell completely. Also a product of his alma mater, I have often suspected educators would accomplish a great deal more if their verbiage was not so filled with inscrutable, self-serving pomposity. Compared to other fields of study, not that much is actually learned during a student's three to four years in school. The argument is often proffered that there is simply too much to master within that time to cover the field in much depth. I strongly disagree. Like Mr. Campbell, I suspect that knowledge is intentionally obscured in an attempt to self-aggrandize. And, yes, students do come to think ArchiSpeak should be imitated.

However, the good news is that architecture is truly a glorious, engaging, ennobling field that does not need false prophets to convince us of its power to move hearts and minds. Thoughts cleanly stated and intended to be grasped will win more converts and offer more far-reaching benefits to those both within and outside the profession. There is an enormous amount of material students can master (yes, *master*) during their brief time in school that can turn them into true professionals by the time they graduate—as long as educators become willing to regard this as their true goal.

—Zofia Rybkowski
Hong Kong

Pompous twittering

While it was invigorating to read Mr. Campbell's critique of Archispeak, and amusing to see his examples of "incomprehensible babble," I must disagree with his conclusion. Mr. Campbell says: "Nobody is going to trust a dollar to a pompous twit." If this is so, then how did these masters of "gobbledygook" become professors at elite institutions in the first place? Harvard, Columbia, etc., have not only given dollars to these "pompous twits," they have also given them prestige.

And why is Mr. Campbell surprised? The architecture deans of the two institutions cited above (Mr. Silvetti and Mr. Tschumi, respectively) were appointed to their exalted positions because of "gems of pretentious illiteracy," not because of their built work. Is it any wonder, then, that these men would invite younger versions of themselves to fill faculty positions?

Clear writing (and its companion, clear thinking) will be rewarded at elite institutions when the deans of these schools embody these virtues, not before. Until then, strength and courage to Mr. Campbell. It pains me to think that this prize-winning critic is intimidated by charlatans, however prestigious their résumés.

—James Parsons von Duncker
Via e-mail

Speak low

Mr. Campbell says it right. What did all those funny-sounding descriptions of buildings and their purpose mean? Did we really need an obtuse explanation to understand whether a building was successful or not? And did enough references to esoteric sources elevate a bad design into a good one?

As a profession, let's all pledge to take up Mr. Campbell's challenge: talk straight and in a way that engages rather than alienates our paying clients. The results will bring us back from the fringe.

—Scott Levitan, AIA
Executive Director for Real Estate Development
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The code

As a member of the National Fire Protection Association (NFPA) Board of Directors and the AIA Codes and Standards Committee, I would like to offer a different point of view to the article "One Code: An Idea Whose Time Has Come" [Practice Matters, August 2001, page 55]. The value of an integrated set of codes for the built environment is clear. However, state and local officials who are considering the adoption of a full set of codes should carefully consider the means by which that set was developed. Not all codes are developed through the same process, and not all code organizations embrace full, open consensus. That is why I strongly support NFPA's decision to complete a full set of integrated codes for the built environment, including a consensus-based building code.

For more than 100 years the NFPA has been developing codes and standards through an open process that encourages anyone who has an interest in the health, safety, and welfare of the public to participate. Some in our profession have complained that the NFPA should have altered its code development process to "go along" with the International Code Committee (ICC), yet they have not held ICC to the same standard. NFPA made numerous, diligent efforts to work with ICC officials. However, when the ICC repeatedly ignored substantive issues raised by the NFPA, it became clear that the fundamental differences regarding consensus between the two organizations were too great. As a result, the NFPA and its partners committed themselves to developing a complete set of integrated codes.

The responsible thing for anyone involved in code adoptions is to fairly evaluate both NFPA's and ICC's building codes side by side before making an adoption decision. Even those jurisdictions that are currently using the International Building Code should compare the codes to ensure they have made the best choice for their community.

—Ronald P. Bertone, FAIA
Via e-mail

Corrections

The building described in the caption for the top photo on page 149 of the October issue should have been called the Conference Center of The Church of Jesus Christ of Latter Day Saints.

Send letters to rivy@mcgraw-hill.com.

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CIRCLE 12 ON INQUIRY CARD

Record News

Highlights Experts on security p. 22
AIA budgets for 2002 p. 24
Tschumi gets Acropolis job p. 28

SPECIAL REPORT

Engineers further study structural failures in World Trade Center



Why did the World Trade Center towers collapse as they did? And why did they stand for as long as they did after impact, even though the lateral force exerted in each crash was about 25 million pounds, and the planes took out about 35 of the 59 exterior columns on each side of the buildings? As engineers continue to study the collapses, they are understanding how the structures stayed in place and, conversely, failed.

Ironworkers cut through WTC steel supports that remained standing in mid-November.

As RECORD has reported [OCTOBER 2001, page 22], the steel trusses under floors immediately adjacent to the impact were the first to succumb to fire from explosions and jet fuel. As those floors buckled and sagged, they lost the link to the bolt and weld connections to interior and exterior columns and collapsed on floors below, causing a "pancaking" action, or progressive collapse.

One theory, however, is that the 47 steel interior columns buckled first because the fire heat may have been most intense in the center. Steel loses its strength at about 1,100 degrees Fahrenheit, but some interior spots may have reached over 2,000 degrees in seconds because jet fuel burns at a high temperature. The core columns carried about 60 percent of a tower's weight of 276,000 tons above the plaza level. The exterior column stiffness, however, kept the towers from collapsing immediately. The crashes would also have knocked loose a portion of the fireproofing sprayed on structural steel.

Because the exterior columns were tightly spaced (39 inches on center), the remaining columns above and adjacent to the hole on the damaged facade formed a Vierendeel truss—a form of arch—over the hole, which transferred loads downward.

John E. Czarnecki, Assoc. AIA

Panelists: Despite terrorist attack, the skyscraper is here to stay

Leon Krier once described tall buildings as "vicious and immoral." After September 11, James H. Kunstler, author of *The Geography of Nowhere*, declared "the age of the skyscraper is at an end." Moderator Robert Campbell, FAIA, *Boston Globe* columnist and RECORD contributing editor, threw up these and other targets at a National Building Museum symposium and let four experts take their shots. The November 9 event, "The Future of the Skyscraper," featured Leslie E. Robertson, FASCE, the structural engineer for the World Trade Center; Paul Katz, AIA, principal of Kohn Pedersen Fox; Bruce Fowle, FAIA, principal of Fox & Fowle Architects; and Witold Rybczynski, professor of urbanism at the University of Pennsylvania.

"We have to learn to keep airplanes away from buildings, not keep buildings from being struck down by airplanes," Robertson said. "We designed the towers [to withstand the impact of] a Boeing 707 flying slowly," he said, and not for a much larger 767 full of fuel and flying at top speed. He pointed out that the terrorist bomb of 1993 did no structural damage to the WTC.

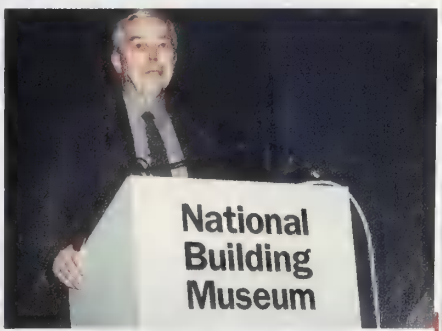
Rybczynski, in tracing the skyscraper's evolution and impact on American cities, said the building type is tailor-made for a nation enamored with novelty, technology, bigness, and big business. "American cities don't have [public] plazas, boulevards, or palaces," he said. "What we have is skyscrapers."

The skyscraper will, in fact, be the building type of the twenty-first century, Katz predicted. By the end of this decade, the majority of the world's population will be urbanized, and tall buildings make the most sense for accommodating high densities. For the West, London's Canary Wharf provides counter-terrorist lessons: Ubiquitous cameras patrol the streets but "don't disturb anyone's freedom," buildings have shatterproof, laminated glass, and they adhere to new codes that increase stair-to-floor ratios and provide smoke vestibules.

Looking at the bigger picture, Fowle said, "If we don't build high-rise buildings, we're going to get the ultimate in sprawl."

Andrea Oppenheimer Dean





Susan Henshaw Jones, president, National Building Museum (left photo, center) was joined by (from left) Witold Rybczynski, Leslie Robertson, Bruce Fowle, Paul Katz, and Robert Campbell. Robertson (right) spoke at the podium.

SPECIAL REPORT

What is the impact on building safety and security issues? Experts consider the future

Three months have passed since the horrific events of September 11. With some time to digest what happened, RECORD asked architects and engineers to consider the implications on building safety and security.

"The public must understand that new design and engineering measures cannot "solve" the threat of terrorism against property. Buildings cannot be made to be terrorist-proof."

—MING WU, AIA, PRINCIPAL, EHRENKRANTZ ECKSTUT & KUHN ARCHITECTS

"Measures to protect tall buildings from events such as September 11 could include examining the impact resistance of structural fire protection materials. Additional protection to the escape routes could also be considered—'hardening' escape stairs and corridors to provide impact resistance and protection against extreme fire events is possible, as is detailed analysis of the risk of severe damage to structural elements in the event of fire. Increasing the number or capacity of stairs, upgrading lifts with emergency power, and employing or training fire evacuation marshals could also be considered."

—ANDY PASSINGHAM, ASSOCIATE, ARUPFIRE

"The standard of care for the mechanical/electrical engineering profession has changed significantly as a result of September 11. The issues of indoor air quality, water quality, and energy efficiency have taken on global implications. Each owner and major tenant will have to assess the risks of a potential attack on their building to maintain life safety."

—ALAN TRAUGOTT, PRINCIPAL, FLACK + KURTZ CONSULTING ENGINEERS

"Our corporate clients clearly have a heightened awareness concerning the security of their buildings and sites. We have also been asked to explore increasing the width of exit stairs over code minimums to allow firefighters to travel up while still permitting the building occupants to exit."

—RAY C. HOOVER III, FAIA, PRINCIPAL, THOMPSON, VENTULETT, STAINBACK & ASSOCIATES

"We will have to learn to live with the fact that there is always a small risk involved with everything we do or wherever we live. The building codes presently reflect the societal consensus based on decades of developments. The WTC attack will not cause major changes—only those that we as a society are willing to pay for."

—CHRISTIAN MEYER, PROFESSOR OF CIVIL ENGINEERING, COLUMBIA UNIVERSITY

"When building occupants see literal barriers, they experience a level of discomfort. Elements of safety and security can, however, be so integrated into the design that they appear as 'art.' For example, it's important to achieve better control of entrances, such as integrated bollards and standards, which can act as barriers to protect entrances by vehicles."

—THOM MEEK, AIA, SENIOR DESIGNER, EARL SWENSSON ASSOCIATES

"There will be a great deal of attention paid to mechanical systems in terms of security and access, as well as filtering and detection. The possibility of a bioterrorism attack on an air-handling system is frightening."

—DAN MEIS, AIA, PRINCIPAL, NBBJ SPORTS AND ENTERTAINMENT

WWW For continuous updates on the developing story at the World Trade Center, visit our special section at www.architecturalrecord.com including:

- Updates on news events relevant to architects, posted as they happen
- First-hand accounts of the scene from sector editors

See the special WTC section at www.architecturalrecord.com





Urban design studio explores design for Ground Zero enclosure

A graduate urban design studio led by Michael Sorkin at City College of the City University of New York undertook a two-week charrette, sponsored by Sciame Construction, to design a temporary enclosure for Ground Zero (left). Students in the studio were Anna Borissevitch, Jonathan Cohen-Litant, David Sungsoo Han, Lisa Iulo, Namwook Kim, Bill Nagel, Jorge Marin, Rok Seong, and Evren Ulker. Here is the studio's design statement:

"Understanding that this site would be a construction zone for years, we investigated a series of strategies for protecting both the site and passersby during the period, for organizing access to surrounding buildings as they come back into use, for creating visual access to Ground Zero by the public, and for managing the flow of traffic in and around the site. Although we all felt that it was completely inappropriate to suggest final outcomes for the site, we were all comfortable dealing with what seemed an immediate necessity. We hope that our proposals can help both to dignify and to protect this hallowed ground."

A number of architecture school studios are developing plans for the World Trade Center site. We're interested in seeing those projects, and possibly featuring them on www.architecturalrecord.com. If your architecture school has a studio that has developed plans for the World Trade Center site, e-mail: kevin_lerner@mcgraw-hill.com.

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OFF THE RECORD

The Los Angeles County Museum of Art had planned to name an architect for its $200 million renovation and expansion in November. Instead, the museum narrowed the field from five to two: Rem Koolhaas and Jean Nouvel. The five finalists included Daniel Libeskind, Steven Holl, and Thom Mayne of Morphosis.

The *Pittsburgh Post-Gazette* reports that the Carnegie Science Center is in contract negotiations with Nouvel for a $90 million expansion. Nouvel was a finalist for the job with Libeskind and UN Studios van Berkel en Bos.

Libeskind won a competition to design his first European university project, a University of North London grad school.

The Dallas Center for the Performing Arts has two competitions under way to select architects for its largest theaters. For a 2,400-seat performance hall, finalists are Christian de Portzamparc, Nouvel, and Foster and Partners. Finalists for an 800-seat performing arts theater are Koolhaas, Libeskind, Snøhetta, and UN Studios van Berkel en Bos. Architects will be chosen by January.

London-based American architect Rick Mather has won his first major commission in the U.S.—a $79 million expansion to the Virginia Museum of Fine Arts in Richmond. Finalists for this job were Hardy Holzman Pfeiffer, Machado and Silvetti, Polshek Partnership, and Smith-Miller + Hawkinson.

Frank O. Gehry, FAIA, will design a science library at Princeton University.

New York's Lincoln Center has submitted plans to the city for a $1.2 billion redevelopment [MARCH 2001, page 27]. The plan does not include a glass-roofed public plaza enclosure designed by Gehry, nor does it include a separate on-campus home for the New York City Opera, as the opera had wanted.

With a net worth still negative by millions, AIA budgets for 2002

While the financial condition of the American Institute of Architects (AIA) took a substantial hit following the dissolution of AECdirect, the organization's level of net assets has improved. The institute continues to follow a financial recovery plan, which includes a number of cost reductions through 2003, approved by its board of directors last May. The board's latest challenge was to approve a 2002 budget at its meeting held on December 6 and 7.

"I'M PLEASED TO REPORT THAT OUR FINANCIAL HEATH IS MUCH BETTER NOW THAN WE HAD ANTICIPATED." —KOONCE

As RECORD reported earlier this year [JUNE 2001, page 28], the AIA lost millions of dollars in net worth primarily due to the dissolution of the AECdirect Web site and deficit spending from 1997 to 1999. The AIA's net worth, which was $9 million in 1996, is estimated at negative $5.6 million today. Earlier this year, the worst-case scenario negative-net-assets estimate was as low as $8.7 million. A combination of events have improved the institute's net assets deficit, as the AIA continues to plan for a positive net worth of $2.5 million by the end of 2003.

"I'm pleased to report that our financial health is much better now than we had anticipated," Norman Koonce, FAIA, EVP/CEO of the AIA, told RECORD. Despite the negative net assets total, Koonce says the AIA will have a positive balance at the end of 2001, with a goal of just over $1 million. Also, the AIA has received a "clean" audit for 2000, the year that AECdirect was started.

Reductions in deficit

The institute's deficit was reduced by almost $1.5 million through financial settlements by the AIA with nearly 60 AECdirect creditors, the largest of which were IBM and IBM Credit Corporation. PricewaterhouseCoopers, the AIA's auditor, revised downward the AECdirect deficit that must be consolidated with the AIA operating budget, from $4.4 million to about $2.5 million. The exact total cost of AECdirect to the institute was not available at press time but was expected to be known by the end of the year, as the AIA settles with creditors. Koonce says the total should be "far less" than $10 million.

Koonce outlined the financial situation in an October 24 letter to nearly 800 people in the AIA, including the board of directors and state and local component presidents. Koonce wrote, "I am pleased to share this reasonably positive report with you, although much work remains to be done on financial issues."

2002 budget developed

While the 2002 planning and budgeting process was under way in November, specific line-item numbers were unavailable at press time prior to board approval. Koonce did not name any institute programs or projects that would be significantly reduced or cut in 2002. He did note that staff cuts are not planned—national office staff had been significantly reduced in recent years.

"WE WILL BE PROMOTING OUR CONTRACT DOCUMENTS IN NEW AND DIFFERENT WAYS." —KOONCE

The AIA was not expecting to meet its budgeted 2001 revenue from the licensing of AIA contract documents. Revenue in 2000 from contract documents was about $8 million, and 2001 was budgeted for a slightly higher amount. The budget for 2002 contract-document revenue will be similar to 2000. "We will be promoting contract documents in new and different ways," Koonce says, noting that electronic documents will now be marketed to architecture firms.

As reported in June, contributions to related organizations will be reduced in 2002 and 2003. That includes $250,000 annual cuts in contributions to the American Architectural Foundation (AAF), which has also had financial difficulties recently. Koonce says MBNA America, which is represented on the AAF board, will be giving the $250,000 annual AAF contribution over the next two years that the AIA will be unable to make.

Although elimination of supplemental dues for AIA members in the late 1990s has had a lasting impact on institute revenue, Koonce says bringing them back is "not on the table at this point." The institute does not place an exact dollar amount on lost supplemental dues revenue, but, Koonce says, "The absence of supplemental dues requires us to budget in a more constrained fashion."

As the AIA moved toward a consolidated single-point dues system in the late 1990s, the institute spent money and time on implementing new membership database technology. When one form of technology for the database system was abandoned in 2000, the AIA had to write off the $1.3 million cost. Koonce says the membership database technology in place now is working as the organization would like for its purposes.

AIA membership has exceeded 70,000 in recent months. Koonce says the AIA, anticipating a recession, is planning for a slight decrease in membership in 2002. Looking back at past recessions, the AIA is projecting a 2 percent decline in members next year. In the 1991–92 recession, which was more severe than the AIA foresees for 2002, the institute membership dropped by 4 percent.

John E. Czarnecki, Assoc. AIA

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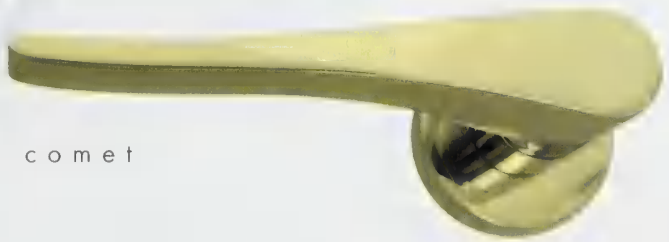
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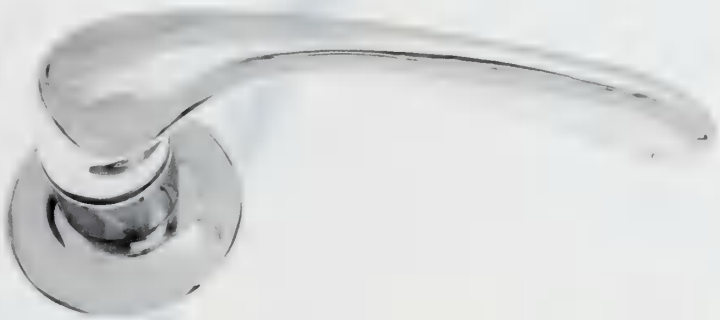
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Cooper-Hewitt's second annual National Design Awards honor design pioneers

Celebrating excellence in American design in various disciplines, the second annual National Design Awards were bestowed at a ceremony in New York on November 14. Presented by the Smithsonian's Cooper-Hewitt National Design Museum, the awards are an effort to increase public awareness of good design by promoting excellence, innovation, and lasting achievement. They were launched last year at the White House as an official project of the White House Millennium Council, and they honor designers in six categories: lifetime achievement, corporate achievement, and design achievement in architecture, communications, environment, and product.



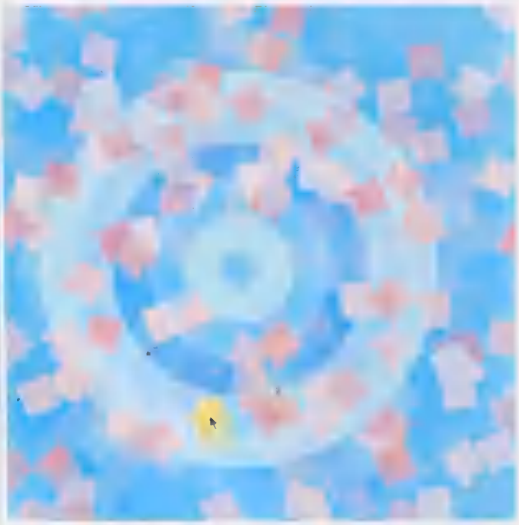
Eisenman

Architect Peter Eisenman, FAIA, won in the architecture category. Eisenman established his professional practice in 1980 in order to focus exclusively on building after many years of teaching, writing, and producing theoretical work. Eisenman's current projects include a museum for the Staten Island Institute for the Arts and Sciences in New York, a 48-story office tower on the Friedrichstrasse in Berlin, and a cultural complex with an opera house in Santiago de Compostela, Spain [MAY 2001, page 48].

David Kelley, founder and chair of IDEO, won in the product category. IDEO is a design and engineering consultancy that has generated more than 3,000 products, including the Palm V. John Maeda, associate director of the MIT Media laboratory in Cambridge, Massachusetts, won in the communications category. Maeda, who has won numerous awards for his work in print and digital media, investigates the physical manifestations of digital data. The winner in the environment category was D.I.R.T. Studio of Charlottesville, Virginia, for its work in urging communities to transform their industrial sites and reconsider the impact on the surrounding landscape.

Robert Wilson won the lifetime achievement award for his work in the production of experimental theater, in he which often brings together multidisciplinary artists and performers. A corporate achievement award was given to Tupperware brand products—Earl Tupper's early plastic products revolutionized food storage and preparation.

Winners were selected from more than 300 nominations. The jurors were Jeffrey Keyton, Louis Lenzi, Clement Mok, Murray Moss, Kate Spade, Lucille Tenazas, and Bernard Tschumi. *JEC*



John Maeda's Oikake-Zakura game design.



D.I.R.T. Studio's "Testing the Waters" in Uniondale, Pa., 1995.

Construction starts to rebound in late 2002

The value of new construction starts in 2002 will be only slightly less than 2001 levels, with an improved second half of the year compared to sluggish opening months. That was the message in the annual construction forecast by Bob Murray, vice president for economic affairs for The McGraw-Hill Companies Construction Information Group. Murray delivered the forecast to industry leaders on October 30 at F.W. Dodge's Outlook 2002 Executive Conference in Washington, D.C.

Murray says hesitant home buyers, cautious real estate investors, the weaker financial standing of state and local government, and a reduced demand for commercial space will present the biggest challenges to the construction industry in the first half of 2002. Construction activity should pick up late in 2002 with low interest rates and a potential federal stimulus package. The value of construction starts for all of 2002 is projected at $481 billion, just below the $481.4 billion estimated for 2001. Construction starts were expected to increase 2 percent from 2000 to 2001 for the 10th consecutive year of expansion in construction activity, based on a current dollar basis.

"Against the backdrop of a slowing economy, construction has stayed reasonably healthy for 2001, helped by an offsetting pattern by project type," Murray says. "It's true that commercial building has lost considerable momentum this year, dampened by weaker business conditions and tighter bank lending standards. However, further expansion was reported for public works, electric power plants, and schools. In addition, single-family housing for much of 2001 has stayed strong. Even factoring in a fourth quarter decline, single-family housing should be able to match 2000 levels."

Murray says single-family housing will retreat early in 2002 as home sales and construction are impacted by the weak job market and diminished consumer confidence. The full year is projected at 1.175 million units, a 2 percent decline from 2000.

Institutional building construction will rise by 3 percent in 2002, with an increase in school construction and a moderate expansion in health-care projects. Manufacturing building will expand by 2 percent as its four-year decline reaches bottom early next year. Public-works construction is expected to increase by 2 percent as work continues on highways and bridges.

Murray says the aftermath of the events of September 11 will only lengthen the economic decline that was apparent before the terrorist attacks. "The impact will be to deepen and lengthen the economic slowdown already under way." *JEC*

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Commission for Acropolis Museum, intended as home for Elgin Marbles, goes to Tschumi

In a field with 11 other finalists, including Daniel Libeskind and Arata Isozaki, Bernard Tschumi, AIA, has won a design competition for a new Acropolis Museum in Athens. The 225,000-square-foot building will be located at the foot of the Acropolis, situated at the Makriyiannis excavation site. Construction on the $41 million project will begin next spring and finish in time for the 2004 Olympic Games in Athens.

"The concept is a simple but precise museum that reflects the mathematical precision and clarity of ancient Greece," said Tschumi.

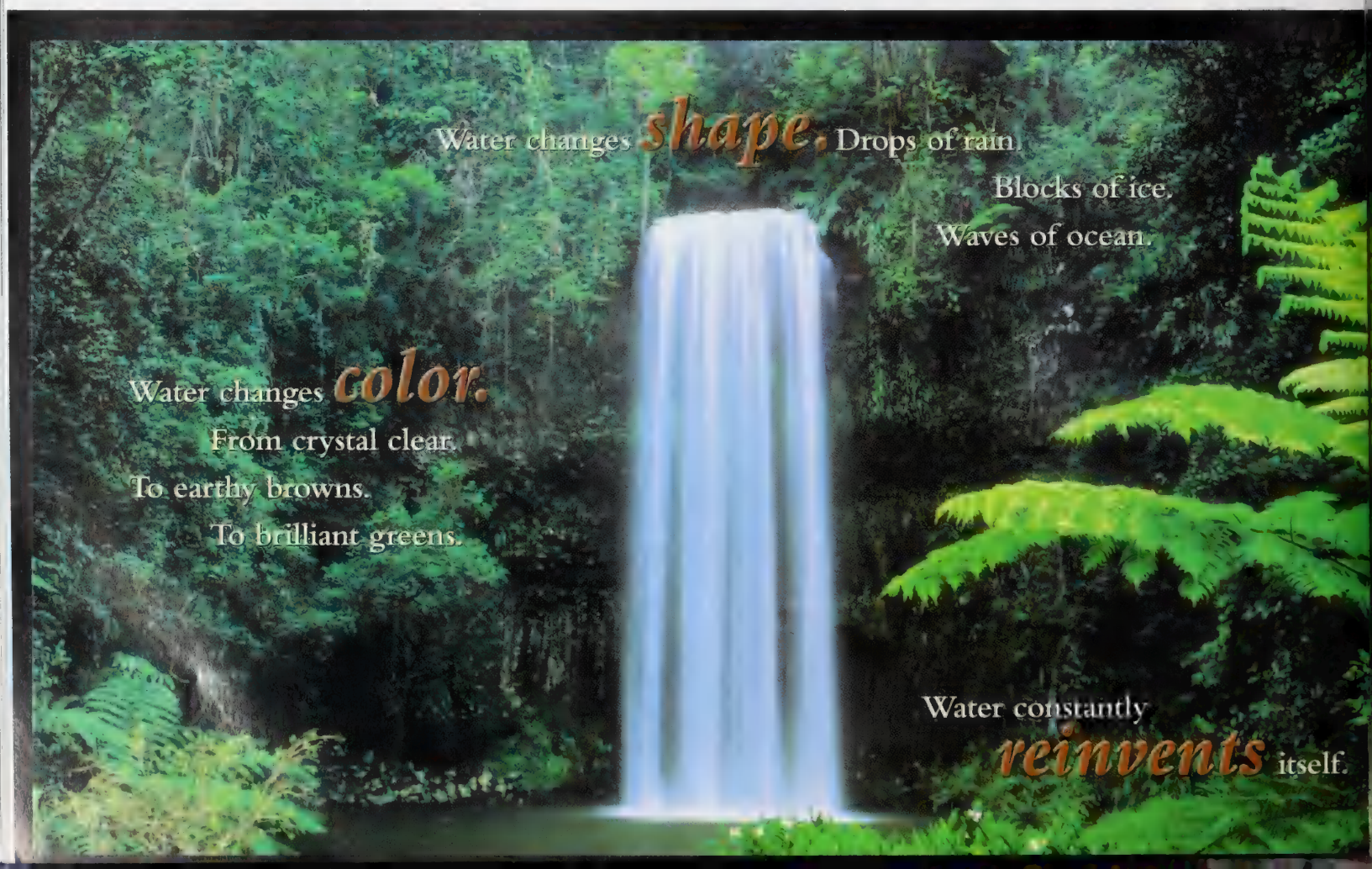
The museum is designed for extensive natural lighting with glazing, louvers, and skylights. The three-story structure will have an entrance lobby facing the ancient ruins and space for temporary exhibitions, shops, and support facilities. The second floor will also have a bar, restaurant, and auditorium, as well as a double-height, trapezoid-shaped gallery area that will accommodate sculptures from the Archaic through the Roman periods.

The new Acropolis Museum is part of the Greek government's latest push to reclaim the Elgin Marbles, also known as the Parthenon sculptures, from Britain in time for the Olympics. The top floor will be a glass-enclosed gallery, dubbed "Parthenon Hall," intended to house the marbles. Visitors would be able to view the sculptures against the backdrop of the Parthenon building from which they originated. The Greeks will keep that top floor empty until the Elgin Marbles are returned. Tschumi says he believes the marbles belong at the Acropolis Museum because they have "a very special meaning for the Greeks."

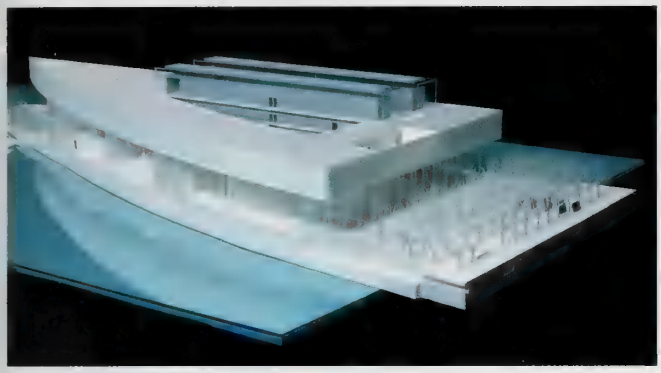


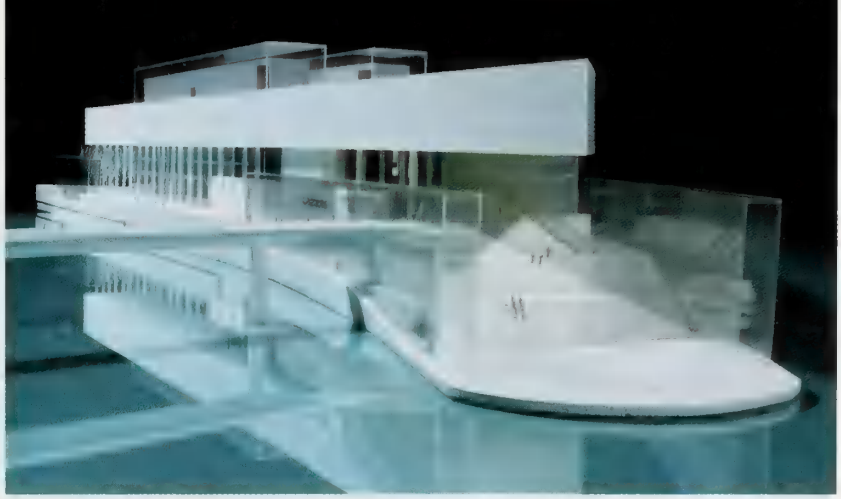
Tschumi's Acropolis Museum design features a top floor gallery for the Elgin Marbles.

British Ambassador Lord Elgin removed the marbles from the Parthenon in 1801, and they are now on display in London's British Museum. The lack of a secure place to house the historic marbles has been one of Britain's strongest arguments for retaining them. *Tony Illia*



Ando has named his design for the museum a "spaceship on the water." A grand staircase at the island tip (right) leads to the entrance.





Tadao Ando wins competition for Pinault Foundation Contemporary Art Museum in Paris

French businessman François Pinault has announced that Tadao Ando has won a competition for the design of the Pinault Foundation Contemporary Art Museum. The $132 million building, to be completed in 2006, will be built on Ile Seguin, situated in the Seine at the southwestern edge of Paris.

Pinault, the president of Pinault-Printemps-Redoute, which includes the Gucci group, considered five other competition proposals, by Manuelle Gautrand, Rem Koolhaas, MVRDV, Steven Holl, and Dominique Perrault, the architect of the national library in Paris.

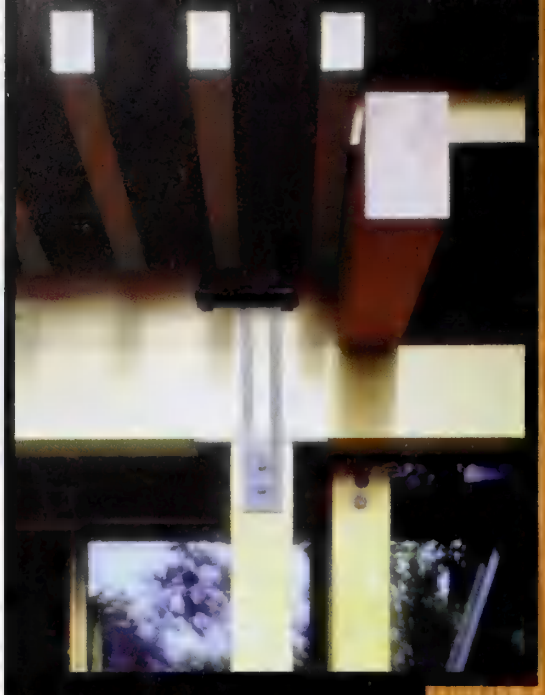
François Pinault's collection of art from the second half of the twentieth century will be shown in a 161,000-square-foot permanent gallery. The museum will have about 344,500 square feet of total gallery space.

Ando's triangular-shaped building, which he has named the "spaceship on the water," has three floors. Administrative offices and a library on the first floor will join a Japanese-inspired forest and commercial space on the second. Exhibition space will be located on the top floor. A grand staircase flanked by glass walls will link the curved plaza on the southwest tip of Ile Seguin with a double spiral staircase in the central atrium of the building.

Ile Seguin has been at the center of political and architectural debate over the past decade. Unsuccessful competition projects for replacing French car manufacturer Renault's derelict factory on the island have included Renzo Piano's ambitious facade around the island and four skyscrapers proposed by Christian de Portzamparc.

The museum will occupy about one third of the island. A separate plan is in place for a science university and researchers' housing on the rest of the island. *Robert Such*





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CIRCLE 14 ON INQUIRY CARD

News Briefs

Hadid wins Copenhagen museum competition Zaha Hadid has won a competition for an extension to the Ordrupgaard Art Museum in Copenhagen. The competition included six finalists: Dominique Perrault Architecte, Paris; Fogh & Følner Arkitektfirma, Copenhagen; Henning Larsens Tegnestue, Copenhagen; Bruun & Clementsen, Copenhagen; MVRDV, Rotterdam; and Architekten von Gerkan, Marg and Partner, Hamburg. The 12,380-square-foot, two-level extension is a partially sunken structure covered by a wavelike canvas shell with slits for indirect lighting. The concept calls for contours that "have been studied and abstracted, then lifted and twisted . . . [into] a formal language," Hadid says. The $4.3 million extension is scheduled to open in 2004. *Tony Illia*



Multiple views of Hadid's Copenhagen design.

Koolhaas cleared in U.K. plagiarism case Rem Koolhaas has been cleared of plagiarism charges in an eight-year British court case in which a former employee and student accused him of stealing drawings of Docklands Town Hall in 1986 and incorporating elements into the Kunsthal art gallery in Rotterdam.



Nouvel's New York tower.

Nouvel designs 32-story tower French architect Jean Nouvel has been hired by developer Landmark Development for a $75 million, three-building complex in the Meatpacking District in the West Village of Manhattan. The proposed development includes a 32-story trapezoidal luxury condominium tower, an eight-story mixed-use building, a five-story commercial building, and rehabilitation and landscaping for a portion of the adjacent abandoned High Line elevated rail platform [February 2001, page 34]. A lengthy approvals process is expected, with variances required from the city's Board of Standards and Appeals.

Sidney Gilbert dies: founded social responsibility group Sidney P. Gilbert, FAIA, a founder of Architects for Social Responsibility, died September 14 at age 63. He had his own New York practice, Sidney P. Gilbert & Associates, and, for the past decade, had a number of projects in Russia.

McClure, former Clemson dean, dies Harlan E. McClure, FAIA, dean of the Clemson University College of Architecture from 1958 to 1984, died on Wednesday, November 1, at age 85. McClure began at Clemson in 1955 and was a visiting professor at the school from 1984 to 1992. He won the 1986 ACSA Distinguished Professor Award and the 1994 AIA/ACSA Topaz Medallion for Excellence in Architectural Education.

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CIRCLE 15 ON INQUIRY CARD

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National Electrical Contractors Association
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Three Custom Solutions That Work!

By Barbara A. Nadel, FAIA

FROM HISTORIC COURTHOUSE RENOVATIONS TO RESIDENTIAL PROJECTS, MARVIN WINDOWS AND DOORS PROVIDES ARCHITECTS WITH DESIGN FLEXIBILITY, RELIABLE SERVICE AND CUSTOMIZED CAPABILITIES.

For over 80 years, the Warroad, Minnesota-based manufacturer has produced made-to-order windows and doors for residential and commercial construction, renovation, and historic restoration projects. Marvin offers over 11,000 standard styles, shapes and sizes, along with nearly unlimited custom possibilities to meet project requirements.

Marvin's new Wood Ultimate Double Hung window provides flexibility for historic renovations and other special installations. This product can be configured numerous ways, including traditional double hung, single hung or an operating round top window. Custom details, such as divided lites or special hardware colors to coordinate with building décor, are available. For more traditional applications, the optional simulated thick sills and ogee lugs capture the charm of old windows.

Custom capabilities don't necessarily mean additional premium costs or lead times of 12 weeks or longer. Marvin offers many standard options, such as unusual divided lite patterns or special exterior casing, considered custom work by other manufacturers. For example, Marvin's *Made for you* manufacturing process provides one-of-a-kind windows and doors to meet specific project needs, such as custom clad color, special glazing options, or other unique design requirements.



Standard Sizes for Historic Homes



"Marvin's standard window selections are also excellent," says Eileen Koenigsberg, AIA, principal of Moore Koenigsberg Architecture, in Denver, Colorado. When Koenigsberg designed a two story, 600 square foot addition to her home in a Denver historic district, she specified standard Marvin Windows and Doors because of the variety and increments available. "The standard sizes perfectly matched the existing windows on the house. We used double hung cottage style windows on the first and second floors to maintain the historic look, along with regular double hung windows in the sun porch to let in more light," she says.

"Turtle Glass:" Environmental and Energy Solutions

Glazing options are available to suit project and climate requirements. In the southeastern United States, particularly Florida, tinted glass (or "turtle glass") for coastal areas is popular for environmental reasons. According to Mike Hoffart, Marvin Architectural Division Manager, some southeast Florida building codes have a "Turtle Code", calling for tinted glass on coastal homes facing the water.

Sea turtles come to the shore to lay eggs, and follow the moonlight reflecting off the water to go back to sea. When homes built along the coastline reflect too much light on the beach, turtles get confused and go inland, explains Hoffart. Turtle glass maintains shading coefficients designed to minimize reflected light on the beach and guide the turtles back to sea.



For better energy performance and heating and cooling cost savings, Marvin offers insulating glass with Low E II coatings, to lessen conductivity of heat and cold from the outside. Glazing with Low E II coatings reflect the high angle summer light and absorb the low angle winter light for temperature control.

Small Town Courthouse Maintains Operations

In recent years, Marvin has provided windows for many non-residential applications, including universities, courthouses and healthcare facilities. In upstate New York, an area subject to cold temperatures and high winds, Marvin worked closely with architects and owners to meet the functional, environmental, acoustical and scheduling needs of a small town courthouse built at the turn of the century along a busy highway.

"During the renovation and new addition to the historic H. Douglas Barclay Courthouse for Oswego County in Pulaski, New York, Marvin was very willing to work within our constraints," says Sheila Weed, AIA, principal of Group 1 Design in Syracuse, New York, and former project architect with JCM Architectural Associates, of Syracuse for the courthouse.

"A small town cannot afford to close down a busy courthouse for even a few hours. The contractor replaced two or three windows at a time, and worked around the client's schedule, with no loss of downtime to the owner. As soon as the windows were installed, the work was done," Weed says.

Marvin customized over a dozen different window sizes and configurations for the project, including simulated divided lites to replicate the original windows in both the renovation of the existing building and the new addition. The double-paned, Low E II glass windows used in courtrooms, judges' chambers, and throughout the building effectively address cold climate concerns and block out ambient noise from adjacent highway traffic.

Marvin Windows and Doors Custom Solutions

"Everything is in the details," says Hoffart. "Our project management personnel work with distributors and dealers for support on custom projects, proposals and drawings. We stay involved with ordering, production, delivery and field service through project close out. Our design support tools include the Marvin Design System, a CAD software package created with the design team in mind. The Marvin Design System runs either as a stand-alone format or with AutoCAD."

The Architectural Services Division in Warroad, about six miles from the Canadian border in northern Minnesota, is across the road from the company's manufacturing plant, where skilled workers turn truckloads of pine into custom-made window and door components.

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Barbara A. Nadel, FAIA is principal of Barbara Nadel Architect, in New York City, specializing in programming, planning and design of institutional facilities. She is 2001 National Vice President of the American Institute of Architects and frequently writes about design and technology.

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CIRCLE 16 ON INQUIRY CARD

Dates & Events

New & Upcoming Exhibitions

A New World Trade Center: Design Proposals
New York City
January 16–February 17, 2002
An exhibition featuring sketches, renderings, and multimedia projects created by established and emerging architects in response to the need to rebuild on the site of the World Trade Center and embrace the future of New York. At the Max Protetch Gallery. For information, call 212/633-6999 or e-mail info@maxprotetch.com.

Modern Trains and Splendid Stations: Architecture and Design for the 21st Century
Chicago
December 8, 2001–July 28, 2002
Through plans, drawings, computer renderings, models, and photographs, this exhibition delves into the world of high-speed travel by presenting the latest innovations in train and station design. Examples include designs from the U.S., Europe, and Japan. At The Art Institute of Chicago. Contact 312/443-3600 for more information.

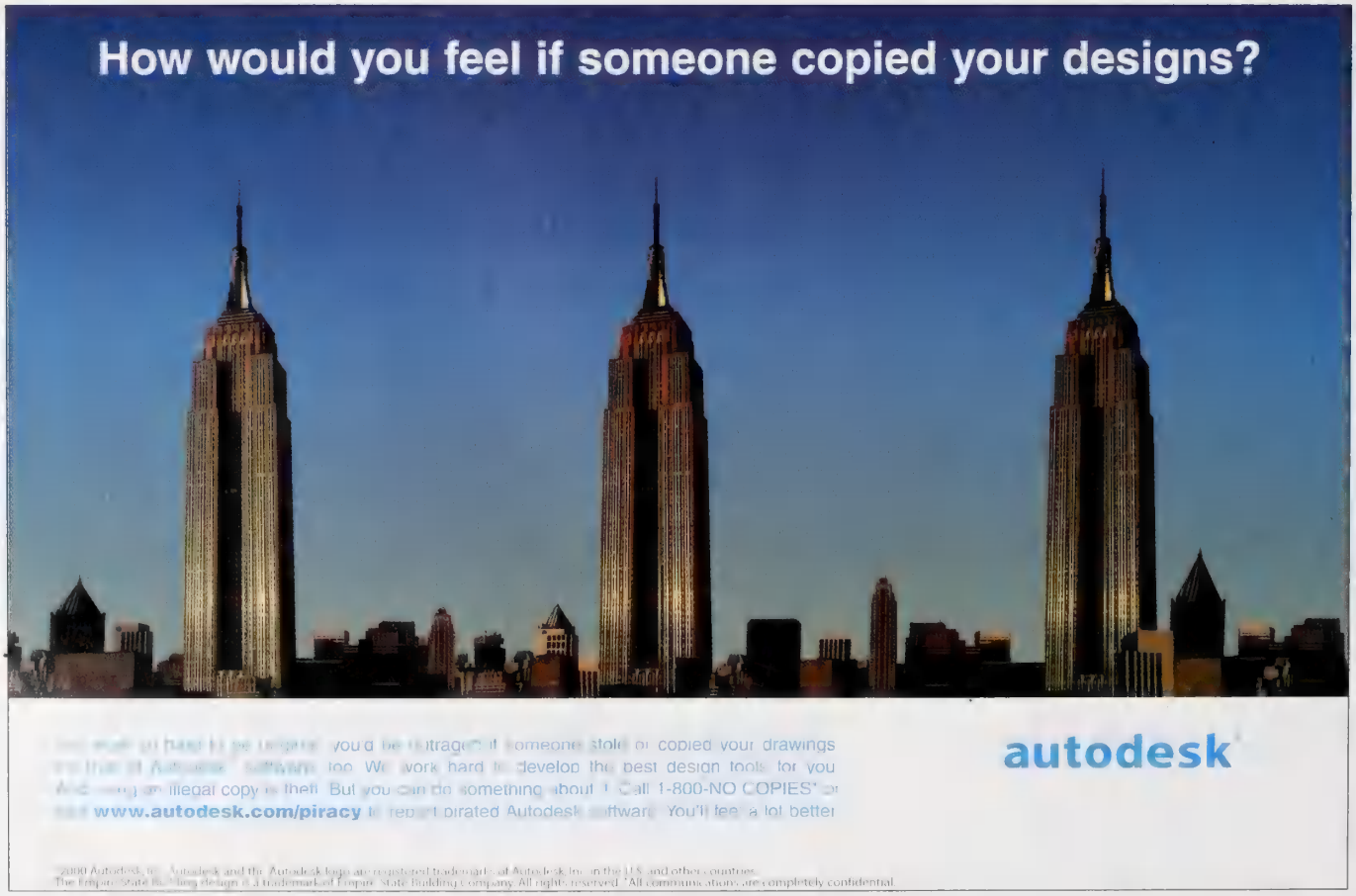
A Matter of Art: Contemporary Architecture in Switzerland
Lausanne, Switzerland
December 5, 2001–January 25, 2002
The exhibition features 15 buildings constructed in Switzerland between 1997 and 2000 that embrace the notion of architecture as an art form. Works by such notable figures as Herzog & de Meuron, Diener & Diener, Miroslav Sik, and Peter Zumpthor highlight the show. At the Swiss Federal Institute of Technology. Contact 021 693 32 31 for more information.

Isamu Noguchi: Sculptural Design
Weil am Rhein, Germany
December 8, 2001–April 21, 2002
Bridging the gap between fine and applied arts, this exhibition features the astounding artistic versatility of sculptor Isamu Noguchi, whose work extends well into the fields of architecture and design. On view are more than 80 projects featuring sculptural works, furniture, stage sets, and public designs. At the Vitra Design Museum. Contact 011 49 7621 702 3351 for more information.

Ongoing Exhibitions

Tadao Ando, Architect
St.Louis
Through December 30, 2001
A rare opportunity to experience the work of this self-trained Japanese architect through models, drawings, and photographs. Featuring 17 projects from Japan, the installation also includes several full-scale architectural elements and a reflecting pool. At the St. Louis Art Museum. Contact 314/721-0072.

Perfect Acts of Architecture
Pittsburgh
Through January 6, 2002
Presents more than 140 drawings and collages on the architectural meditations of architects from the 1970s and '80s, when design was



highly theoretical. Includes the work of Rem Koolhaas, Bernard Tschumi, Peter Eisenman, Daniel Libeskind, and Morphosis. At Heinz Architectural Center. For more information, contact stitelert@carnegiemuseums.org.

Vital Forms: American Art and Design in the Atomic Age, 1940–1960
New York
Through January 6, 2002
One of the first exhibitions to survey the use and influence of organic forms upon visual media. With more than 250 objects on display, the exhibition explores a multitude of mediums including painting, sculpture, clothing, architecture, industrial design, jewelry, and furniture. At the Brooklyn Museum of Art. Contact 718/638-5000 or www.brooklynart.org.

Monuments and Memory
Washington, D.C.
Through January 13, 2002
A timely showcase regarding the memory of nationally significant events and the designs that help embody and maintain these memories. Washington-based architects exhibit competition entries for various war memorials, in addition to hypothetical projects. At the National Building Museum. Contact 202/272-2448 or visit www.nbm.org.

Steven Holl: Parallax
Rome
Through January 13, 2002
Steven Holl complements his most recent publication by showing a similar group of projects in this exhibition. Holl exhibits his work as first and foremost fantasies, in their wee beginnings as ethereal watercolor sketches, study models, and notebook doodles. At the American Academy in Rome. Contact 011 39 06 58461.

The Architecture of the American Folk Art Museum
New York City
Through January 13, 2002
An installation of a model of the newly designed building by architects Tod Williams/Billie Tsien and a photo essay documenting the construction process, from ground breaking to near completion, of the museum's new site at 45 West 53 Street. At the Lincoln Square Gallery. Contact 212/595-9533 or see www.folkartmuseum.org.

Richard Neutra's Windshield House
Cambridge, Mass.
Through January 27, 2002
Renderings, blueprints, correspondence, photographs, and other objects document Neutra's design of a summer house for John Nicholas Brown and family on Fisher's Island, N.Y. At the Arthur M. Sackler Museum. Contact 617/495-9400 or visit www.artmuseums.harvard.edu.

SFMOMA Experimental Design Award
San Francisco
Through February 5, 2002
Featuring the work of this year's recipients, Thom Faulders, Donald Fortescue, and Post Tool Design, the exhibition delves into the breadth of material experimentation taking place among architects and designers in the Bay Area. Architectural compositions of wood and typography are reinvented to question notions of space, function, and communication. At the San Francisco Museum of Modern Art. For more information, contact 415/357-4000.

Russel Wright: Creating American Lifestyle
New York City
Through March 10, 2002
Dinnerware, textiles, and furniture by a master of industrial design. At the Cooper-Hewitt National Design Museum. Contact 212/849-8400 or visit www.si.edu/ndm.

Cesar Pelli: Connections
Washington, D.C.
Through April 28, 2002
One of the most comprehensive retrospectives on the life and work of distinguished architect and AIA Gold Medalist Cesar Pelli. Through photographs, photo murals, more than 100 drawings, and 30 original models, the show will explore over a half century of his career, culminating with his most recent work. At the National Building Museum. For more information, contact 202/272-2448 or www.nbm.org.

Mathematica
San Francisco
Through May 5, 2002
This Eames-designed exhibit from 1961 showcases mathematics as both a science and a tool for art. Forty years later, it remains the only Eames exhibit still in existence. Other Eames designs on display include toys, home electronics, and lesser-known furniture. At the Exploratorium. Contact 415/563-7337 or visit www.exploratorium.edu.

Conventions

The National Ergonomics Conference and Exposition
Las Vegas
December 11–13, 2001
An annual business-to-business event exploring new concepts, programs, and products in ergonomic design. Includes workshops, seminars, and exhibitions with the nation's leading experts. At the Las Vegas Convention Center. Visit www.ergoexpo.com.

World of Concrete
New Orleans
January 18–20, 2002
One of the largest annual construction trade shows, with more than 1,500 indoor and outdoor exhibits and more than 90 seminars concerning everything from the basics to specialized techniques in concrete design and technology. At the Morial Convention Center. For more info, visit www.worldofconcrete.com.

Competitions

2002 AIA Architectural Photography Competition
Deadline: March 1, 2002
AIA St. Louis presents the competition, which is open to all architects registered in the U.S., as well as Associate members of the AIA and student members of AIAS. The top 14 entries will be exhibited at the 2002 AIA National Convention in Charlotte, N.C. Subject matter must be located in the U.S. Cash prizes will be awarded. For more information, call 314/231-4252 or e-mail bookstore@aia-stlouis.org.

Jenn-Air Kitchen Competition
Deadline: December 28, 2001
Only new or remodeled kitchens that exclusively use Jenn-Air major appliances are eligible. A $10,000 cash prize and a trip to Milan are offered. Contact 612/375-8541 or vmelen@clynch.com.

The NCARB Prize
Deadline: February 1, 2002
In an attempt to bring together the academy with professional practice, the National Council of Architectural Registration Boards offers a grand award of $25,000 for a fall 2001 term project that demonstrates this integration. For an entry packet, contact 202/879-0535 or Mbourdrez@ncarb.org.

Material Process: 2001–2002 Young Architects Forum
Deadline: February 20, 2002
The Architectural League of New York is sponsoring this competition, open to architects and designers 10 years or less out of undergraduate or graduate school. Winners receive a $1,000 cash prize, exhibit their work, and present lectures during May and June at the League in New York City. For more information and to get an entry form, call 212/753-1722 or visit www.archleague.org.

RIBA Competition
Deadline: February 28, 2002
Invited to explore the possibilities of environmental construction, the Government Energy Efficiency Best Practice Programme sponsored by the Royal Institute of British Architects has launched its fourth open ideas competition to promote sustainable architecture. Open internationally to students and architects, first prize is £10,000. Contact 01 13 234 1335.

Submit Dates & Events to ingrid_whitehead@mcgraw-hill.com.

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CIRCLE 17 ON INQUIRY CARD

A better piece of New York will be the truest memorial to the World Trade Center tragedy

Critique

By Robert Campbell, FAIA

It would be presumptuous to attempt a summation of any aspect of the tragedies of September 11. This is a column of fragments and shards, as befits its subject.

Everyone talks about what the attack will mean for the future of the skyscraper. But 9/11 wasn't supposed to be primarily about skyscrapers. One plane was headed for the White House. Another was headed for the U.S. Capitol. Only by chance were they stopped. One pilot couldn't find the White House and hit the more visible Pentagon instead. The other plane was wrestled to the ground in Pennsylvania by some brave guys. If events had gone as planned, we wouldn't be so obsessed with the impact on skyscrapers or on the urbanism of lower Manhattan.

I happened to be in Amsterdam on the 11th. A Dutch friend said, "New York will never look the same." The remark sounded strange. When I think of New York, I don't think of skylines. I think of the lively sidewalks of SoHo and Chelsea or the ever-renewing surge of the arts or the tree-lined townhouse streets of Brooklyn or the lakes and meadows of Central Park. To my Dutch friend, New York was a postcard, rather than a place he'd lived in. Skylines are for tourists. They don't matter.

The touristic response can be obscene. An acquaintance recently watched as a young couple visited the site. The woman posed for a snapshot with the wreckage as background. "Smile," said her friend.

"As an architect, if I had no economic or social limitations, I'd solve all my problems with one-story buildings. Imagine how pleasant it would be to always work and plan spaces overlooking lovely gardens."—Minoru Yamasaki.

An irony: Yamasaki's high-rise Pruitt-Igoe housing underwent deliberate demolition, too—performed by the city of St. Louis in the very same year the WTC opened.

The newspapers and the Internet are flooded with proposals for a memorial. Perhaps we rush to make such proposals out of psychological need. When we talk about a memorial, we're talking, by definition, about an event that is in the past. We reassure ourselves that the tragedy is behind us, that the present is a time for memory and healing. But it isn't behind us. Terrorism goes on. What we are hoping to wrap up and label is, in fact, still a presence among us.

Three times I've been a juror in national competitions for memorials. All three juries left me impressed with the difficulty of creating a memorial to an abstraction. After the Civil War, we erected memorials to General Grant and President Lincoln at opposite ends of the Mall. The designers had icons to work with. But today we don't believe in heroes. We instead create memorials to generalizations—to World War II, to the Vietnam Veterans, to Women in Military Service, to the bombing of the Murrah Building. It's a much tougher design problem.

How do you memorialize a tragedy? More than a thousand people, most of them schoolchildren and those caring for them, died in a fire on an excursion steamer, the General Slocum, on the East River in 1904. Until the World Trade Center, it was the worst disaster in New York City's history. How many of us, even New Yorkers, know of the commemorative monument in Tompkins Square on the Lower East Side?



Understated: The only memorial to an excursion steamer fire that claimed more lives than any other New York City disaster prior to September 11.

The kids lived there, in a neighborhood known as Witten Garten in a section of the city called Little Germany. Now the weather has worn the stone, and the relief inscription is almost invisible: "They were the earth's purest children, young and fair." Many of the graves are in Lutheran All Faiths Cemetery in Queens, but I don't know whether anyone still visits them.

What remains of the Slocum is what always remains: the word, the text, the written record, in newspaper archives, in books, in the published recollections of the survivors. Maybe, just maybe, that's the way it should be. Certainly it never occurred to anyone to preserve the charred wreck of the Slocum as a memento. The Greeks wouldn't have wanted to save the Trojan Horse, either. They had Homer. But we live in a post-literate age, an age of gargantuan physical monuments like the proposed Holocaust Memorial in Berlin. We no longer trust poets to remember the past.

I'm talking on the phone to Stanley Tigerman in Chicago, who, no surprise, knows exactly what he thinks and is happy to be quoted. "Within a week of that incredible disaster there were prominent architects"—he names them, I won't—"vying for the job. They didn't even go through the motions of a wake before they were out there marketing. I find it so shocking, I can't even begin to tell you. I'm totally offended. There should be a waiting period where nothing happens, a period of mourning. There doesn't seem to be an awful lot of morality going in architecture today, and this is an awful example of it."

Architecture critics, too, have been "vying for the job" by telling the world exactly who should or who shouldn't get to redesign the site.

Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic for The Boston Globe.

Everyone, it seems, is trying to score off the disaster. Maybe a national crisis that touches our own field makes us all feel a little bigger, a little more important in the world.

Despite the posturing Tigerman speaks of, what's striking at this early writing is how many of us architects do not appear to be acting selfishly. Many of us are active in the numerous coalitions that sprang up after the disaster to think about what to do next. Organizations like the AIA, the Municipal Art Society, the Regional Plan Association, and many others, all more or less interlocking, are hoping to develop some principles to guide the rebuilding of the site, and at least get them on the table for discussion before the forces of money and politics take sole command. They hope, too, that the WTC can be a catalyst for thinking about larger issues. As with any such tragedy—the great fires in Chicago and London, the bombing of cities in World War II—the World Trade Center disaster offers an opportunity to plan a better world.

Two proposals, at any rate, can be dispensed with. We should not rebuild anything like the World Trade Center. It was a terrible place for office workers. At street level, the area was a nightmare of vacuous alienation. We should also not devote the whole 14 acres to a memorial space. New York is about moving ahead, not about sentimental gestures. Perhaps, as several people have suggested, the actual footprints of the towers—about once acre apiece—should be treated as sacred space in a new development. The only virtue of the WTC was its density. High density makes it possible for an enormous number of people to work in walkable proximity to one another. That's good for business, for urban excitement, and for the creative exchange of ideas. But you don't need supertowers to achieve density. There's plenty of underdeveloped land nearby, enough to soak up the 50,000 jobs the WTC once housed.

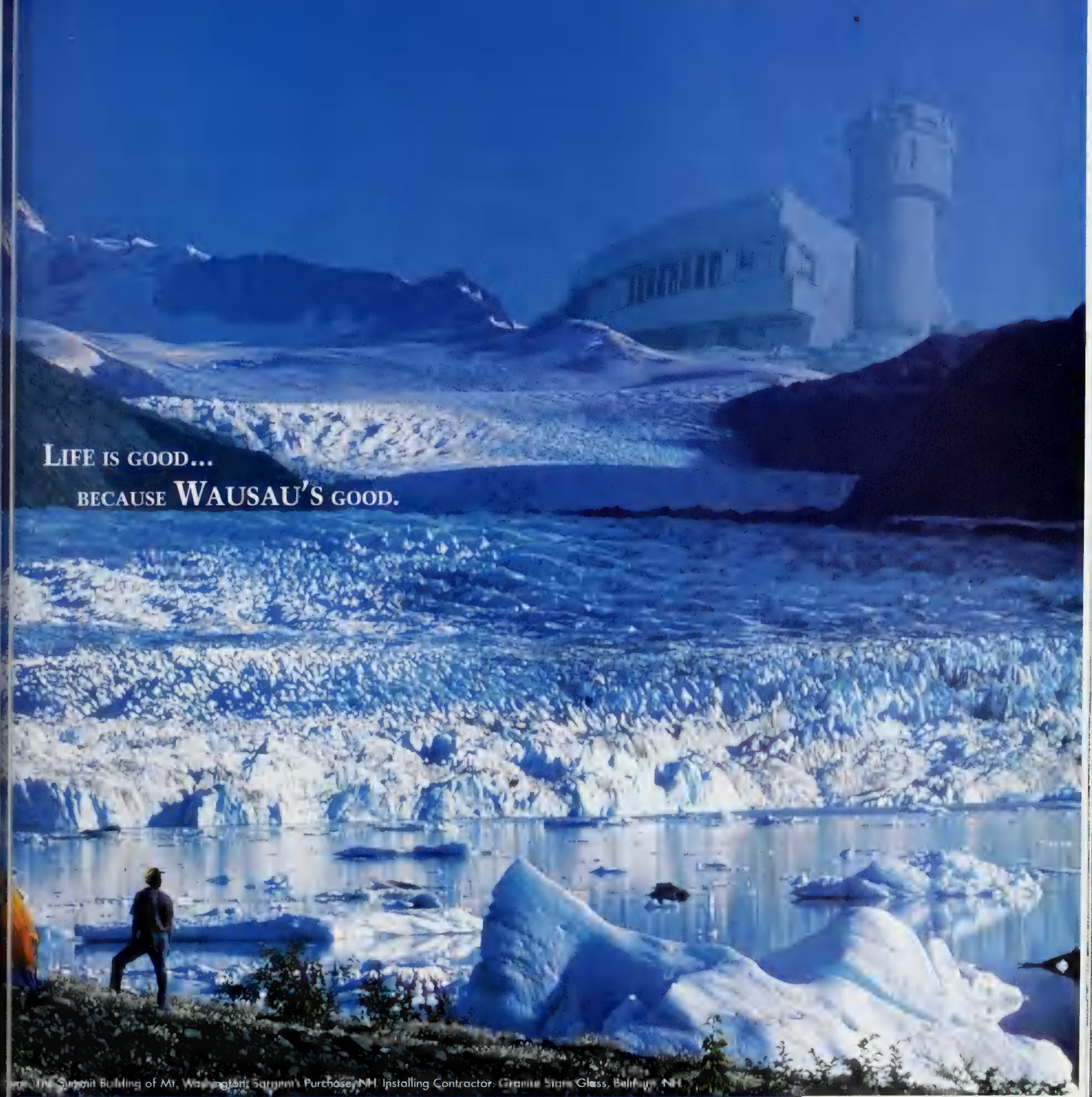
Lower Manhattan is a small area, only about the size of Central Park, and for all its world fame it suffers many deprivations. It has no access to the regional rail network. It doesn't have a good park. It's disconnected from its waterfront. There isn't enough mixed use to make the place interesting. There are few residents and therefore few theaters, restaurants, stores, or other amenities. But the wealth and energy are unparalleled, and therefore so are the possibilities. Can this be our chance to create the model city for the twenty-first century? Would we even know how?

One begins to dream . . . a rich mix of different uses, dense but not skyscraping; a place that feels like a bubbling up of many initiatives rather than the product of a simple top-down corporate order; a place of innovative and exciting architecture; a place in touch with nature and with the life of the street and of the harbor, but visibly in touch, too, with the electronic world culture of our time; a walkable place well served by trains and ferries, a world you'd delight to live or work in . . . why not?

The greatest memorial of our time was also the most controversial. The long debate that raged around the Vietnam Veterans Memorial was part of its success. Those angry arguments, among veterans and peaceniks, artists and architects, writers and government officials, were part of the healing process. They helped us discharge our distrust of one another. Is it possible in New York City, home of the power broker and the secret deal, that a similar debate about the WTC is possible? One that could bring us to a common understanding of what a city should be? The truest memorial will be a piece of a better New York. ■



CIRCLE 18 ON INQUIRY CARD



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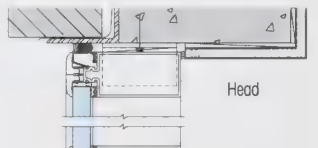
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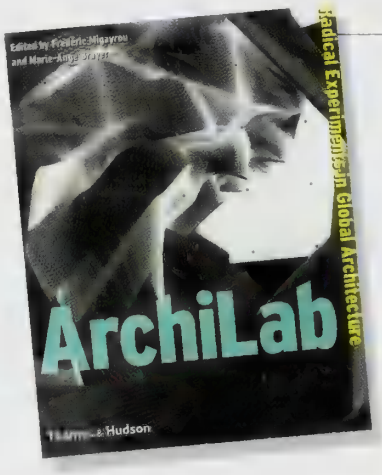
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Books

Archilab: Radical Experiments in Global Architecture, *edited by Frédéric Migayrou and Marie-Ange Brayer. New York: Thames & Hudson, 2001, 528 pages, $50.*



Too often publications generated by an event arrive dated and out of touch with rapidly evolving architectural discourse. *ArchiLab: Radical Experiments in Global Architecture* is an exception, and all the more unusual because it is an edited version of catalogs that accompanied the first two Archilab conferences, those of 1999 and 2000.

Organized by the city of Orléans, France, the French government, and the FRAC Centre (boasting one of the fastest growing international collections of experimental architecture), the objective of the Archilab conferences—and of this book—is to bring together emerging designers from all over the world who are changing the course of pedagogy and practice, to showcase their work, and to discuss their ideas.

The book's essays, reflecting an international approach, are by contributors ranging from the German art and architecture critic Andreas Ruby to the director of design at the U.S. National Endowment for the Arts, Mark Robbins. One of the most illuminating essays, by the event's coeditor and co-organizer, Marie-Ange Brayer, explores recent notions of radical/experimental architecture and compares them to twentieth-century, predigital models.

ArchiLab looks at 60 architects who grapple with complex contemporary issues, including the globalization of architecture and the digitalization of design and production. The 60 include many who are well known—Greg Lynn, Kolatan/MacDonald, Reiser + Umemoto, Jakob + MacFarlane, NOX, FOA, dECOi, Archi-Tectonics, MVRDV, and UN Studio, to name just a few. But there are also lesser-known talents, such as Gregoire & Petein, Vincent Gaullart, IaN+, Kovac Malone, Marcos Novak, Objectile, FAT (Fashion Architecture Taste), Oosterhuisassociates, and H-Kavya.

Most important, perhaps, this volume illustrates the extensive range and depth of contemporary global architecture and how it is changing as a pedagogical process and a cultural entity. The book is the first well-edited, readily available Archilab publication. It is hoped that Thames & Hudson will follow it with biannual catalogs of the group's conferences. *Joseph Rosa*

Architecture Now! *by Philip Jodidio. Cologne, London, Madrid, New York, Paris, Tokyo: Taschen, 2001, 576 pages, $40 (paper).*

Leaf through *Architecture Now!* and you'll find as good an overview of contemporary building design as you're likely to find anywhere between two covers.

The second in a projected biannual survey of forward-thinking architecture by the German publisher Taschen, Philip Jodidio's book demonstrates, perhaps unintentionally, his assertion that one of the hallmarks of today's architecture is its breakneck rate of change.

The book gives you a look at up to three completed works by each of 60 architects, along with



biographical and contact information. Included are new works by the likes of Gehry, Meier, Foster, and Ando, but also perhaps less-well-known works, such as Jakob + MacFarlane's morphological restaurant at the Centre Pompidou in Paris or Asymptote's proposed Virtual Museum. *Andrea Oppenheimer Dean*

4 x 4: A Series on Contemporary Architecture, *New York: Thames & Hudson., 2001, 128 pages, $23 per book (paper).*

Among today's up-to-the-minute architectural trends, none are sexier than virtual architecture and dematerialized architecture. But both tend to disregard the richly expressive attributes of construction and to give short shrift to the sensual qualities of materials and their ability to convey timelessness while fusing tradition with invention and the new—tendencies that are the subject of this series of four books. Each volume presents four projects by four architects who are loosely linked by their design approach or sensitivity, not by style. All 16 designers share a fascination with construction as form and as a vehicle for expression.

Techno Architecture: Jones, Partners; TEN Arquitectos; RoTo; Smith-Miller + Hawkinson, by Elizabeth A.T. Smith, explores the use of technology as a carrier of cultural meaning by presenting the work of four designers who use technology to elevate structural expression. *Radical Tectonics: Enric Miralles, Günter Behnisch, Mecanoo, Patkau Architects*, by Annette LeCuyer, unites designers who probe the limits of poetic construction, surface form, and spatial complexity while championing craft. *Cool Construction: David Chipperfield, Waro Kishi,*

Books

Eduardo Souto de Moura, Tod Williams and Billie Tsien, by Raymund Ryan, brings together architects whose work tends toward restraint and is shaped by indigenous climate, topography, and patterns of use but is tied neither to time nor place. By contrast, the projects appearing in *Concrete Regionalism: Antoine Predock, Tadao Ando, Wiel Arets, Ricardo Legorreta*, by Catherine Slessor, are rooted in the particular environments and cultures of their regions.

Each little book offers a thoughtful introduction, explaining the approach and attitudes conveyed by its title while reviewing the careers of its four architects and showing, for each, four of their built designs. The books are a pleasure to look at and read. Catherine Slessor's description of regionalism, in *Concrete Regionalism*, as mining "everyday life and perceptions for intimations about a truly progressive future" is among several nuggets to be mined in this series. *A.O.D.*

Architectural Design Portable Handbook: A Guide to Excellent Practices, *by Andy Pressman, AIA, NCARB. New York: McGraw-Hill, 606 pages, 2001, $50.*

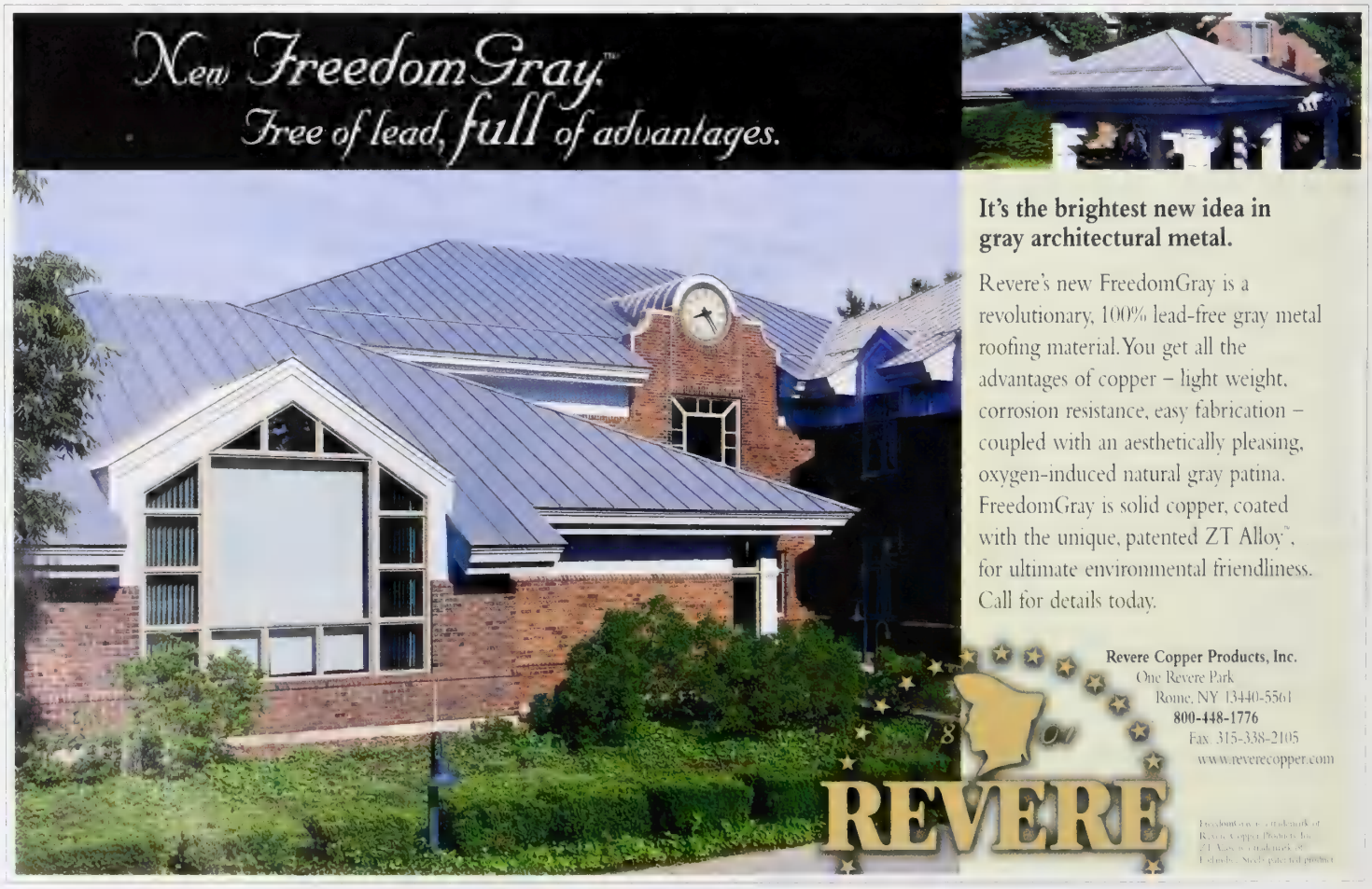


Every architect wants to become a better designer, and Andy Pressman, director of the architecture program at the University of New Mexico and a practicing architect, has put together a handy little volume to help both veterans and novices hone their skills. He identifies and discusses important issues while focusing on the magical aspects of design, explaining that his left-brained approach is merely a necessary evil for organizing and clarifying heaps of material.

Among the numerous elements he covers are critical thinking in design; orchestrating client involvement; professional ethics; computing, drawing, site planning, and physical modeling; architectural photography; sustainability; structures, mechanical systems, lighting, and acoustics; daylighting; building codes and universal design; and time management.

He writes, however, that the essence of his book "lies in a departure from algorithms, easy solutions, and a business-centered culture." He has peppered his text with essays and interviews by more than 70 educators and practitioners, who draw on their specialties and experience, and he unapologetically describes their contributions as patchwork. He's proud of having given a diverse range of individuals free reign, allowing them to write about what's on their minds. Useful to be sure, Pressman's handbook also has a lively design, is dotted with drawings and charts, and is fun to read. *A.O.D.* ■





CIRCLE 20 ON INQUIRY CARD

WHERE WE STAND

AIA 3rd Quarter Financial Highlights

To AIA members,

While we still have a long way to go, the financial picture at the Institute began to brighten at the close of this year's third quarter. Our 2000 audit is complete and our net asset position is much better than required by the three-year financial plan adopted by the AIA Board in May 2001. Our 2001 projections now indicate net income will be better than budgeted. Finally, intense planning and prudent budgeting for 2002 will result in a budget that achieves a net income surplus.

The AIA Board, Finance Committee and management share a strong sense of fiscal responsibility. Aggressive financial oversight and controls are in place. AIA annual budgets do not allow deficit spending. They are realistic, developed with built-in measurement and accountability. When I wrote to you in May providing a financial overview of the Institute, I indicated that regular updates would be forthcoming. This report is the latest in a series that you can expect on a quarterly basis in the future.

Worst-case 2000 scenario improved

The imminent dissolution of AEC (a for-profit corporation in which AIA held an interest), coupled with favorable AEC creditor settlements contributed to a clean 2000 AIA audit. In May, our auditor's worst-case scenario for the year 2000 showed a net asset position of negative $4.4 million for the Institute. The completed 2000 AIA audit now reveals negative net assets of only $1.4 million.

2001 performance exceeding targets

Additionally, we project positive net assets at the end of 2001, positioning the AIA ahead of the three-year financial plan. Despite our challenging economy, we remain committed to achieving our 2001 net income budget of $1.4 million. Current revenues in some areas are below targets. Aggressive expense reduction measures to offset those shortfalls are being implemented.

Prudent 2002 planning underway

Cash flow is adequate. Assets are improving. Our proposed 2002 budget, intended to produce a net income surplus, is also focused on serving the long-term professional interests of AIA members — now 70,000 strong. We are committed to sound and open financial practices for the Institute. I welcome your comments and wish you a peaceful and happy holiday season.

Sincerely,

Norman L. Koonce, FAIA
Executive Vice President/Chief Executive Officer

AIA Audited Balance Sheet ($thousands)

	1999	2000
Assets		
Cash	$1,300	$3,122
Investments	10,591	10,022
Property and Equipment, net	10,285	11,179
Deferred Publication Costs	3,126	3,175
Accounts Receivable	2,577	2,136
Other Assets	2,055	1,642
Total Assets	**$29,934**	**$31,276**
Liabilities		
Line of Credit	$5,000	$5,500
Accounts Payable	4,109	7,590
Deferred dues and other revenue	4,617	2,554
Notes Payable	14,881	17,107
Total Liabilities	**$28,607**	**$32,751**
Net Assets		
Unrestricted	(3,635)	(5,724)
Temporarily Restricted	3,907	3,194
Permanently Restricted	1,055	1,055
Total Net Assets	**$1,327**	**($1,475)***
Total Liabilities & Net Assets	**$29,934**	**$31,276**

**A significant improvement from the auditor's worst-case calculation in May of negative $4.4 million.*

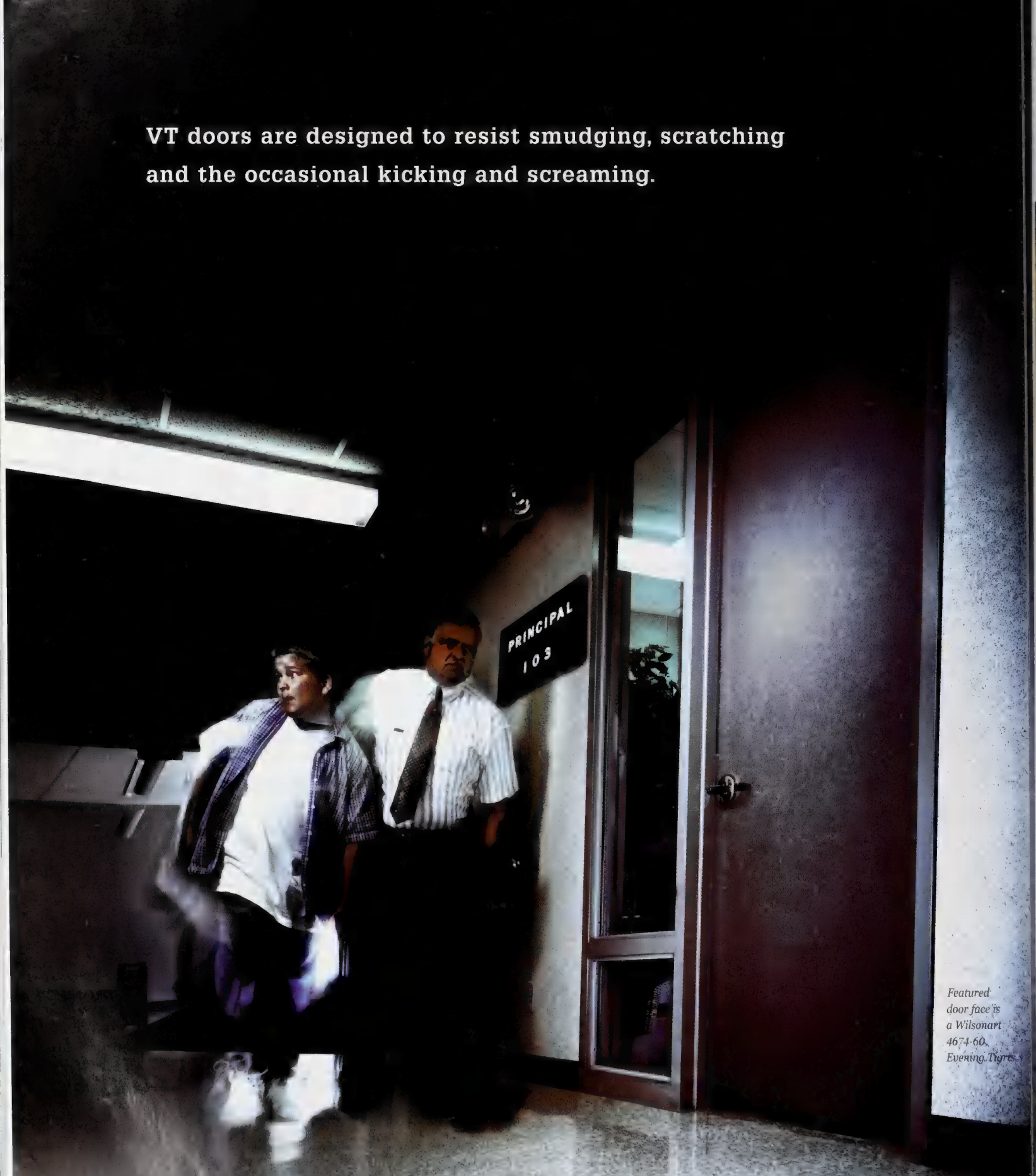
2001 Projections ($thousands)

	2001 Budget	2001 Forecast
Revenue	$38,234	$36,694
Expenses	37,164	36,186
Operating Net Income	**$1,070**	**$508****
Non-Operating Income	2,000	3,000
Non-Operating Expense	(708)	(280)
Unrestricted Net Income	2,362	3,228
Restricted Expense	(916)	(1,082)
Total Net Income	**$1,446**	**$2,146**

***As of November 1, 2001. Aggressive steps are being taken to meet or exceed the 2001 operating net income goal.*

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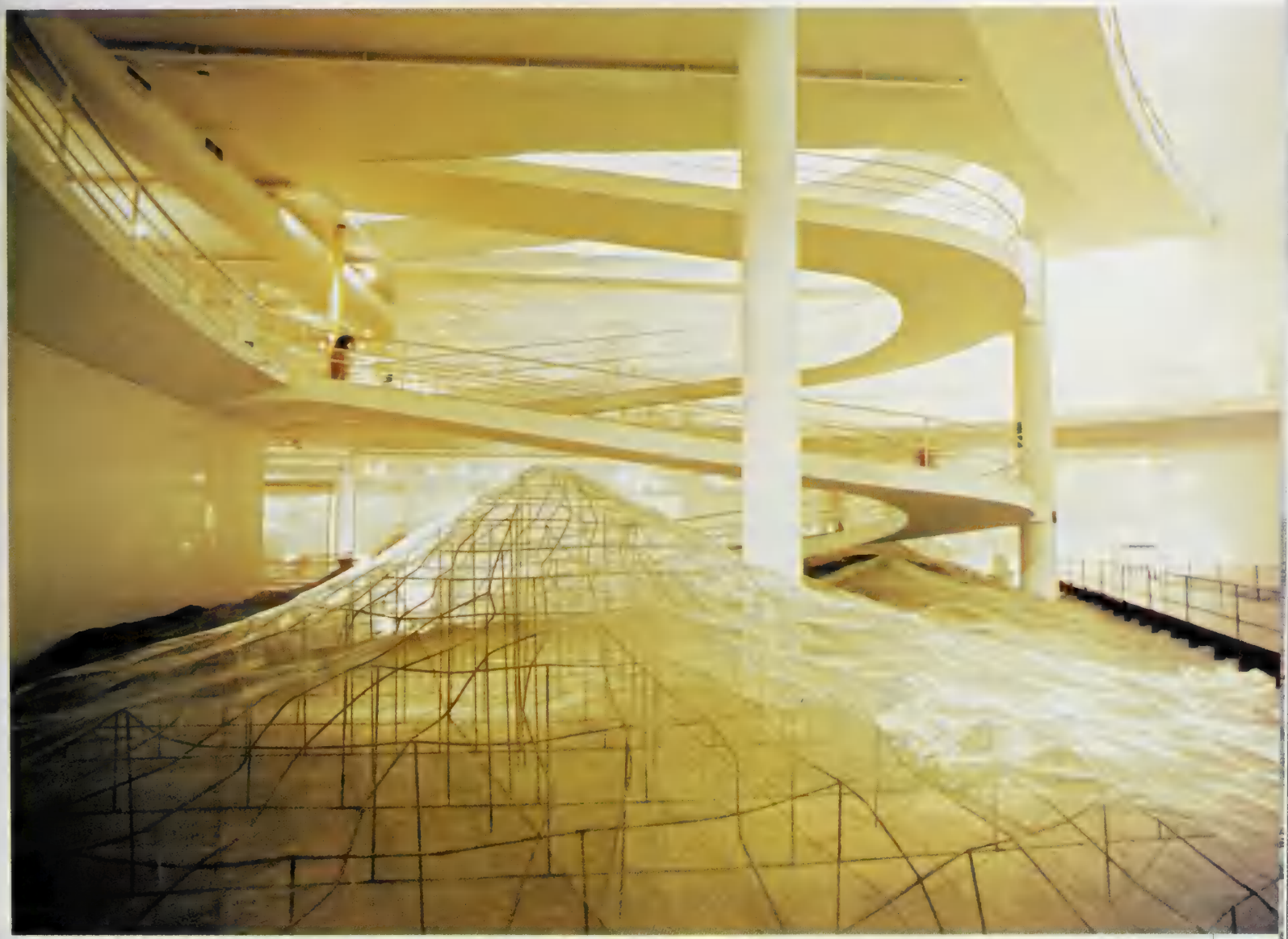
Featured door face is a Wilsonart 4674-60, Evening Tigre.

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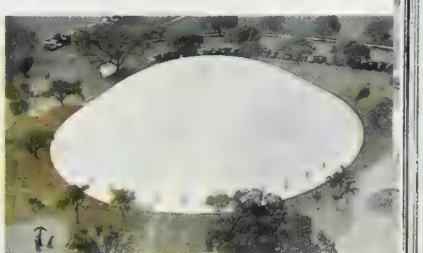
Snapshot



By Clifford A. Pearson

Face-lift brings a Niemeyer landmark back to life

Like Brazil itself, the Pavilion Lucas Nogueira Garcez in São Paulo has a history of proud achievement and hard knocks. Designed by Oscar Niemeyer in 1954 as a key element in his cluster of arts and exhibition buildings in Ibirapuera Park, the saucer-domed hall epitomized Brazil's brash tropical Modernism at midcentury. Roberto Burle Marx worked with Niemeyer on the complex, enveloping the buildings in a swirling landscape reminiscent of a Miro painting. Nicknamed the Oca (after the circular huts built centuries ago by indigenous people from the area), the pavilion seemed to miraculously connect futuristic design with the country's precolonial past. But when a right-wing coup in 1964 toppled the civilian government, the Oca fell into the hands of the military. For the next two decades the building served as an unloved, poorly maintained air-force museum, its seamless space cluttered with airplanes and clumsy display areas. Then for 14 years it lay abandoned.



Now the Oca is back, its concrete shell restored to mint condition, and its mechanical and air-handling systems



totally rebuilt. Sponsored by banker Edemar Cid Ferreira, who is active in São Paulo's arts community and has been trying to lure the Guggenheim Museum to Brazil, the renovation was supervised by Paulo Mendes da Rocha, one of the country's top architects and an old collaborator of Niemeyer's. Now in his 90s, Niemeyer gave Mendes da Rocha his blessing to renovate the building but wasn't directly involved in it.

The 100,000-square-foot Oca once again plays host to traveling art exhibitions and wows visitors with its dramatic concrete ramp spiraling up and down. Thirty porthole windows provide the only daylight in the building, heightening the sense of being in a space adrift from the orthogonal world of traditional architecture. For its reopening in April 2000, the Oca showed modern artworks as part of a multivenue exhibition of 500 years of Brazilian art. (A different part of this exhibition, featuring Baroque and modern art, is now at the Guggenheim in New York under the title *Brazil: Body and Soul*.) Like Frank Lloyd Wright's Guggenheim, the Oca can be a difficult space to display art, but for designers up to the challenge, it can provide a memorable stage on which to show off. The inventive contemporary works in the inaugural exhibition took full advantage of the domed space (page 45), as did Ralph Appelbaum's design for the next show, *50 Years of Brazilian Television* (below).

When the Oca was built nearly 50 years ago, it seemed to hold the promise of a country propelled by innovation and optimism. After being waylaid by political and economic troubles, Brazil may be back on track. ■

The Oca (above) sits in Ibirapuera Park, where Niemeyer designed several other buildings. An exhibition on Brazilian television (below) was designed by Ralph Appelbaum. A show of contemporary art (page 45) filled the building last year.





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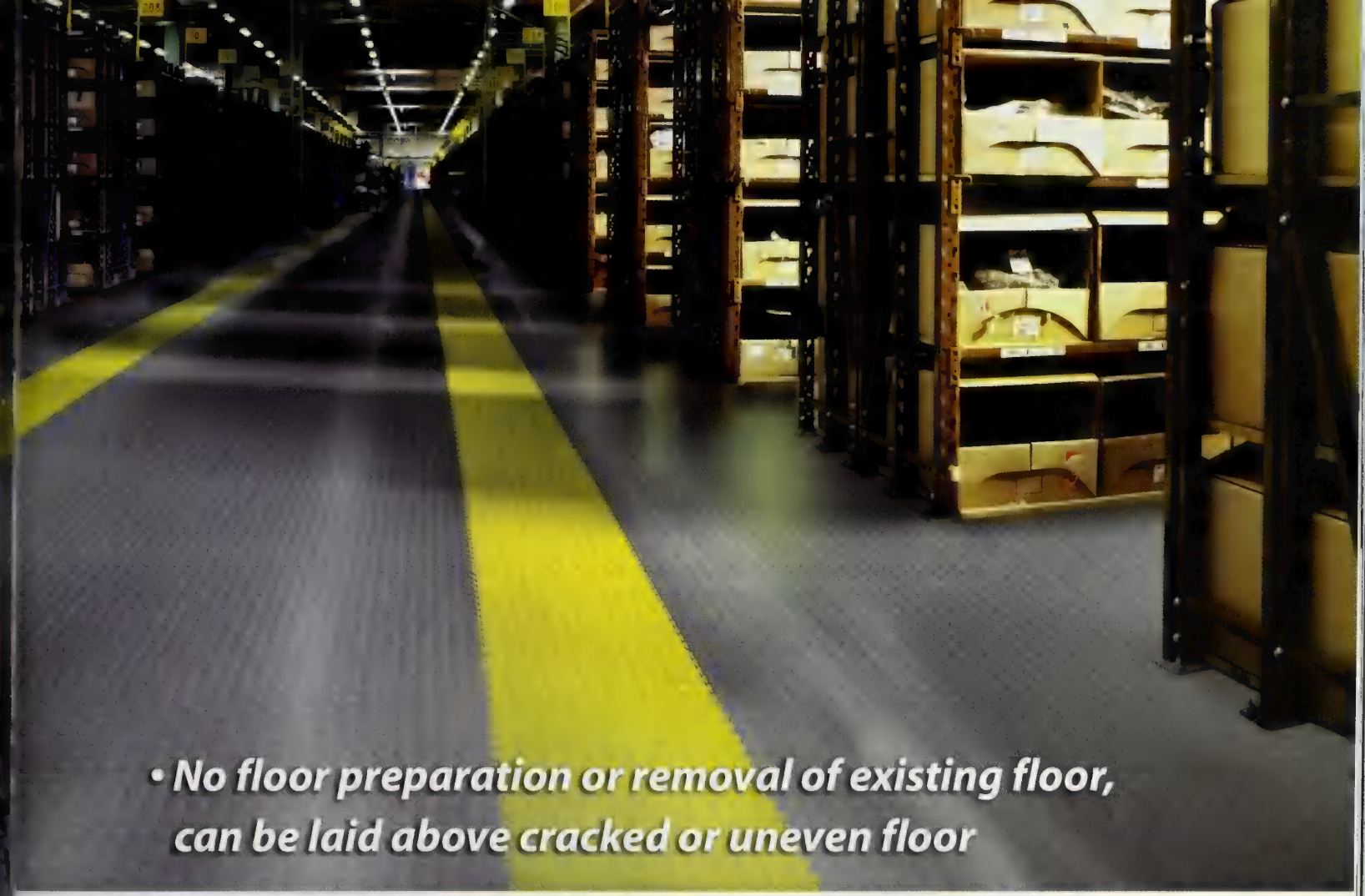
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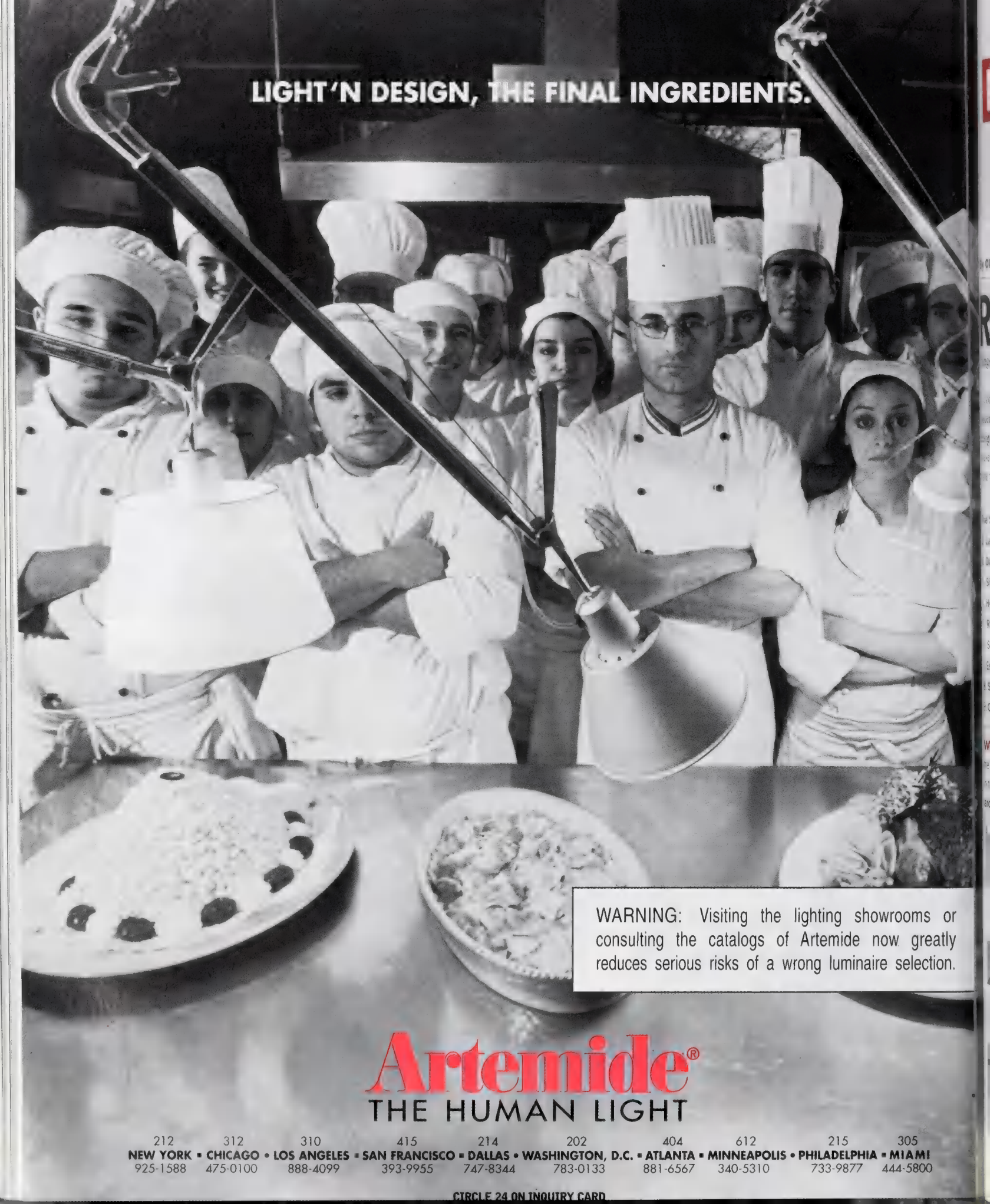
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CIRCLE 24 ON INQUIRY CARD

Design Vanguard 2001

OUR SECOND ANNUAL SELECTION OF TALENTED UPSTARTS IS A DIVERSE GROUP. WHAT THEY ALL SHARE, THOUGH, IS A TENDENCY TO PUSH THE ENVELOPE.

By Clifford A. Pearson

Risk. It's inherent in all architecture, even when purposely minimized. In the work of young architects, though, it's often glorified, treated as an asset in challenging old ways of doing things. Think of it as extreme architecture, not for the faint of heart.

For the second consecutive year, the editors of ARCHITECTURAL RECORD have selected a group of emerging architects to showcase in our December issue. Instead of a warm-and-fuzzy holiday gift, we offer a design collection with a decidedly edgy feel to it. We plan to continue presenting our Design Vanguard at the end of each year, though we would hate to use so comforting a word as "tradition" to describe it.

This year's designers stretch from Tokyo to Ljubljana, with stops along the way in Vancouver, Houston, Phoenix, Chicago, Los Angeles, and New York. Three firms are based outside the U.S., but even the domestic ones have either cultural ties to or work experience in Argentina, Sri Lanka, the Netherlands, Germany, the Czech Republic, and Slovakia. These firms are small, but they're hardly provincial. Some of the architects teach in countries other than the ones in which they base their practices. Many of them lecture and attend conferences around the world. Indeed, I first met two of them presenting their work in Costa Rica. Borders don't mean much to this group, unless they're seen as lines to be crossed, jumped, or blurred.

The firms featured are:

1. Lang Wilson PAC
2. David Guthrie
3. Shuhei Endo
4. Hernán D[illegible] Alonso
5. Richärd & Bauer Architects
6. SYSTEMarchitects
7. Escher GuneWardena
8. Studio Gang/O'Donnell
9. Ofis: Oman and Videcnik

WWW For more information on the people and products involved in these projects, go to Projects at *architecturalrecord.com*

Some of this year's firms have built more than others, but each is represented in these pages by a portfolio of work that includes completed projects and work still on the boards. Our goal is to show not only what these designers have done, but where they are headed. The issues grabbing their attention range from the nuts-and-bolts of materiality and construction to esoteric questions of representation and metaphor. The scale of work also varies—from an obsessively detailed "prosthetic" limb for a chair to a new town for Chilean mine workers. Some of the projects are for the desert, others for cyberspace.

A few of the designers have worked on theater and performance pieces, happy to engage in cross-discipline dialogues that might spark new ideas or reveal new perspectives. In a world where everyone seems to be connected, ideas travel at the speed of light, morphing along the way and picking up unexpected meanings and intriguing accents. Look at the work shown in the following pages and you may see the influence of Archigram, comic books, and botanical drawings. Peek around a few corners and you'll find the long shadow of Rem Koolhaas, architecture's indefatigable multitasker whose writings, musings, and research projects on the ways of the world in a global, image-driven culture have shaped a new generation of architects' views of design, capitalism, communication, airports, and even shopping.

Not all of the work in this issue will pass the test of time. Some of it will look forced or dated or misguided in hindsight. While we hope at least a few of the architects will make lasting contributions to the profession, we know others will quietly disappear. That's the risk we take when we bet on new talent. ■





Lang Wilson PAC pushes (and often crosses) boundaries to apply art to business

By Clifford A. Pearson

Architect: Lang Wilson Practice in Architecture Culture
Location: Vancouver
Date founded: 1997
Design staff: 6
Partners: Cynthia Wilson, Oliver Lang
Education: Lang: Technische Univeersitaet Berlin, Dipl. Ing. Arch., 1993; Columbia University, MSAAD, 1995; Wilson: University of British Columbia, B. Arts, 1986, B. Arch., 1991
Work history: Lang: Naegeli-Vallebuona, Berlin, 1992; Behrendt + Stutzer, Berlin, 1993; Greg Lynn Form, Hoboken, N.J., 1995; Peter Eisenman Architects, N.Y., 1995; Smith-Miller + Hawkinson, N.Y., 1996–98; Wilson: Zeidler Roberts Partnership, Barcelona, 1991; RKS Marina Stankovic, Berlin, 1992–93; Steinebach + Weber, Berlin, 1993–94; Annabelle Selldorf, N.Y., 1994–95; Greg Lynn Form, Hoboken, N.J., 1996
Key completed projects: Expansion, School of Architecture, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile, 1999
Key current projects: Museum of Extreme Culture, British Columbia; PAC House, anywhere; 2010 Olympic Bid, Vancouver; Discovery Sales Centers, throughout North America
Web site: www.lwpac.net

Most firms tack "Architects" or "Associates" at the end of their names. Oliver Lang and Cynthia Wilson use a less compact suffix: Practice in Architecture Culture. Their goal is to alert everyone that this husband-and-wife team is running a different kind of firm, one that looks beyond the architect's traditional role and connects the built environment with what's going on in the larger culture. Itinerant, interdisciplinary, and research-driven, the partners love talking, teaching, and building architecture. Since meeting in Barcelona, where both were graduate students, Lang and Wilson have worked or studied in Berlin, New York, and now Vancouver. In addition, Lang is a visiting professor in Valparaiso, Chile, where he and Wilson designed an addition to the school of architecture at the Universidad Tecnica Federico Santa Maria.

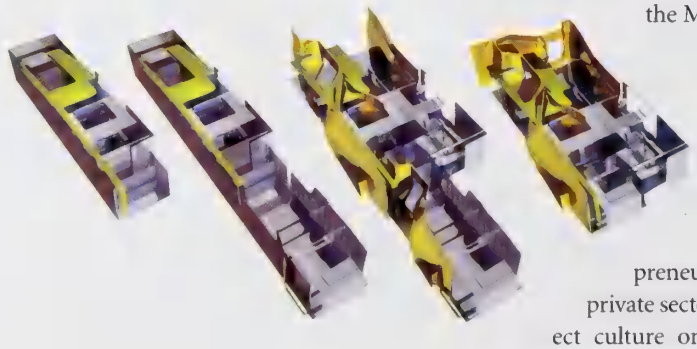
"Our ideas about practice evolved from our time in Barcelona [in the early 1990s] when there were incredibly vibrant discussions on architecture, urbanism, and how design affects the way people live," recalls Lang. Using digital technologies and techniques (such as storyboarding) borrowed from other arts, the firm likes to collaborate with a team of consultants assembled for a particular project and work closely with the client, users, and contractors. "We don't see our role as one of providing solutions but of reformulating problems," says Wilson. Talking to these partners, you hear certain words a lot: for example, "fluid" (as in borders, disciplines, and forms) and "platform" (as in starting point, shared ground, and computers). Rather than searching for the perfect form or enclosure, Lang and Wilson want to create architecture that can adapt and change over time, that can let "different scenarios coexist in one place."

The firm is currently working on a Museum of Extreme Culture (MoX-C), an exhibition and business center being planned by a private developer for an undisclosed site in British Columbia. The program calls for a facility that would take visitors to the top of a mountain where multimedia exhibits and films would present the world of extreme sports such as snowboarding and snowblading. Lang Wilson designed a gondola station and a lightweight, prefabricated structure for use as a museum/conference/media center and also created a video that the client has been using to raise funds for the project. The architects are fascinated by "evolving, artificial urban areas," such as those developing around airports, office parks, and shopping malls, and they see the hybridized program of the MoX-C as another example of this trend, says Lang.

The firm is also exploring the potential of "mass customization" in a project for manufactured housing (left). Envisioned as a product that customers can order with particular features, these so-called PAC Houses combine custom design with mass production.

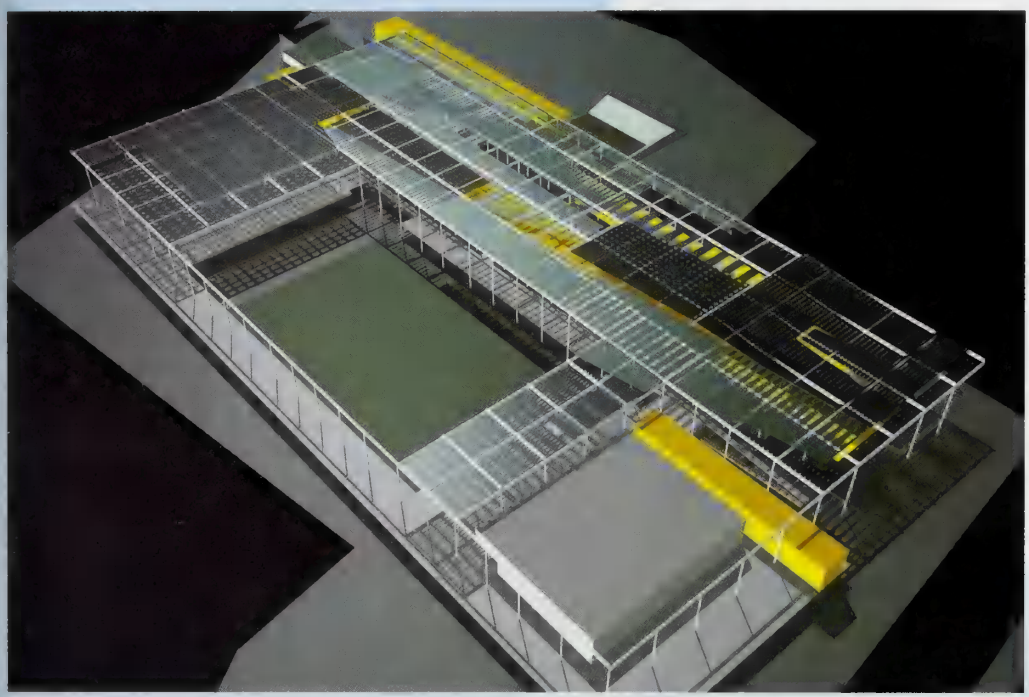
Like other young architects with an entrepreneurial bent, Lang and Wilson are eager to engage the private sector and a new digital economy. "We're trying to project culture onto business," says Lang. "The idea is to create value—cultural value and dollar value." ■

Lang Wilson initiated the PAC House project (below) and hopes to find investors for manufacturing these "mass customized" units.

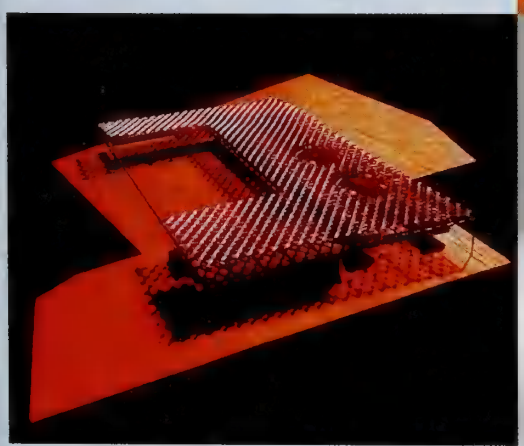


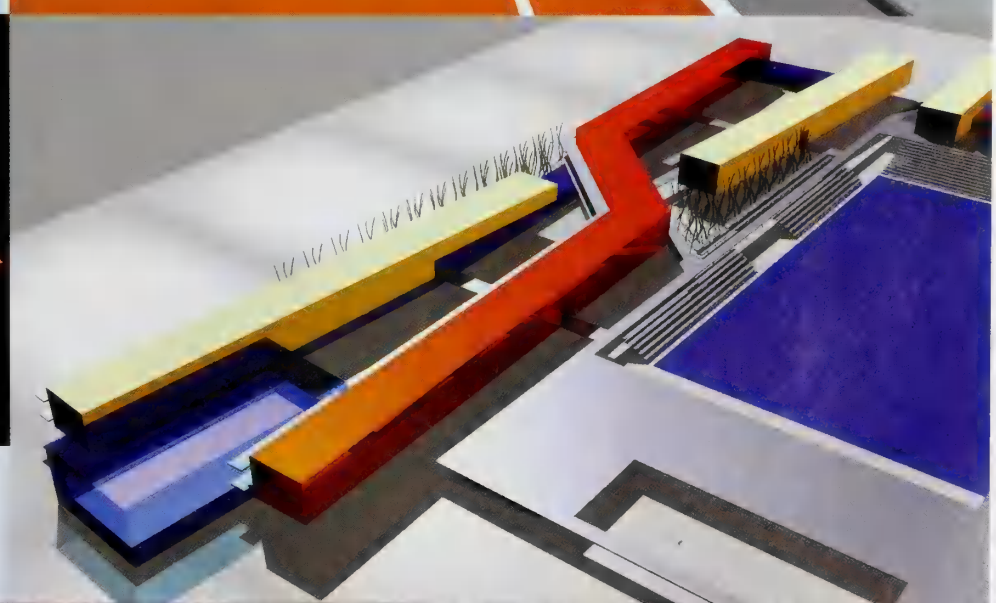
Colegio Chuquicamata
Calama, Chile

Codelco, the operator of the largest copper mine in the world, plans to move 20,000 workers from its Chuquicamata mine in northern Chile's Atacama desert to the nearby city of Calama. Lang Wilson's entry in a competition to design a school and community center in Calama calls for a set of buildings that would be protected from the full impact of the sun by a 50-foot-high grid of shading material. The idea is to create a "connective landscape" rather than a closed institution, says Lang. The firm collaborated on the project with Mathias Klotz and Carolina del Campo.

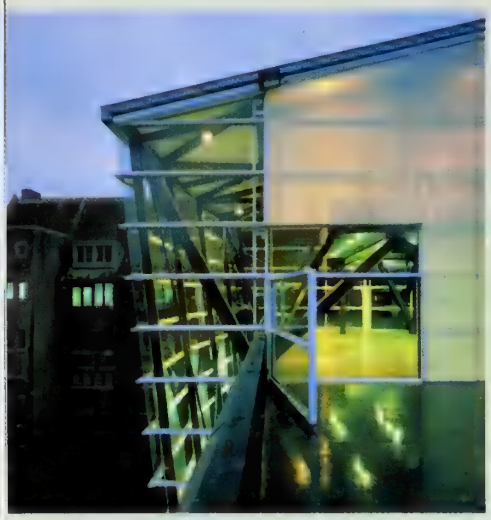






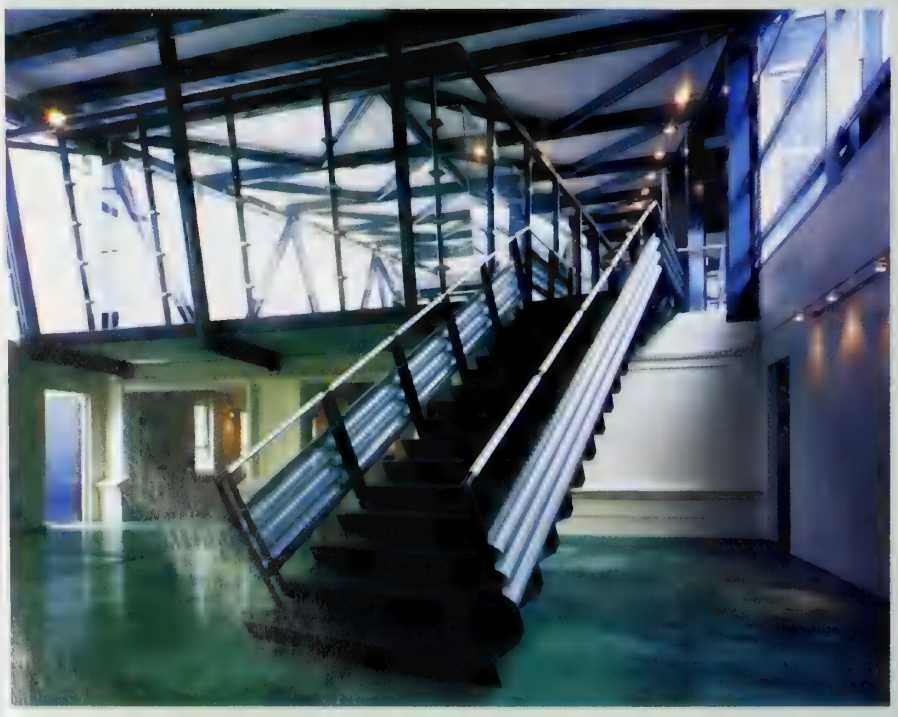


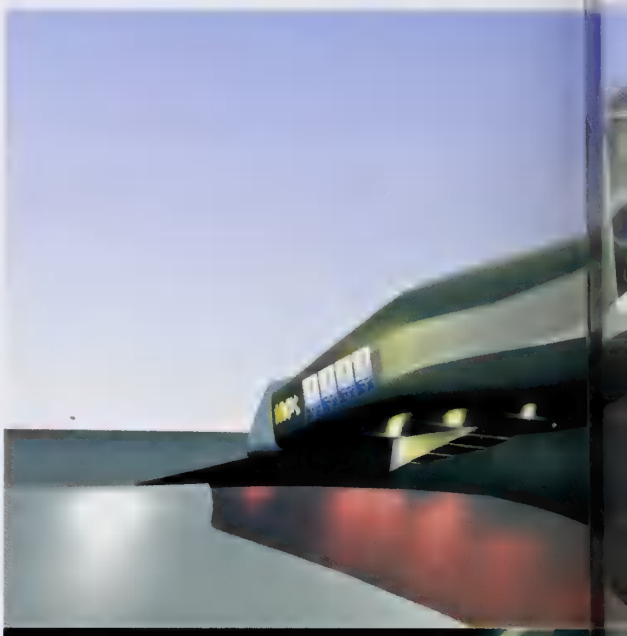
Expansion, School of Architecture
Valparaiso, Chile



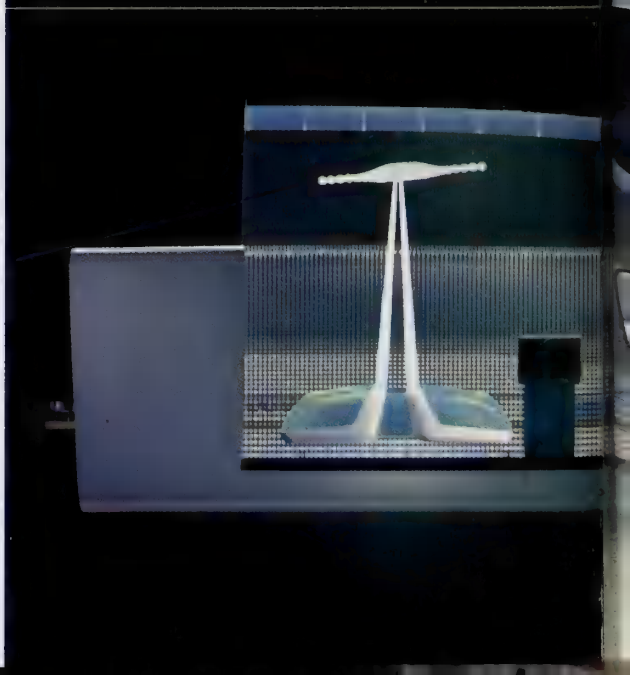
Given just 10 months to design, bid, and build a 7,500-square-foot addition to the school of architecture at the Universidad Tecnica Federico Santa Maria, Lang Wilson created an airy nest perched on top of an existing neo-Gothic structure. The goal was to provide a flexible environment that could accommodate design studios, a computer lab, and temporary events such as exhibitions and parties. "There needed to be a degree of incompleteness, so we approached the building as spatial infrastructure rather than prescriptive form," explains Lang. Built for just $390,000, the addition opened in May 1999. A second phase will include an outdoor auditorium on the roof for 250 people.





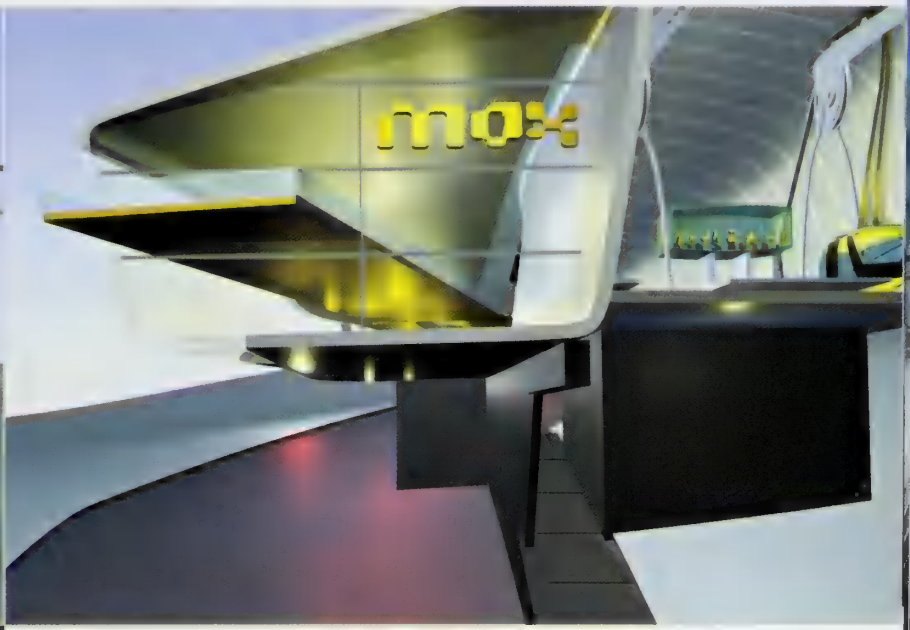


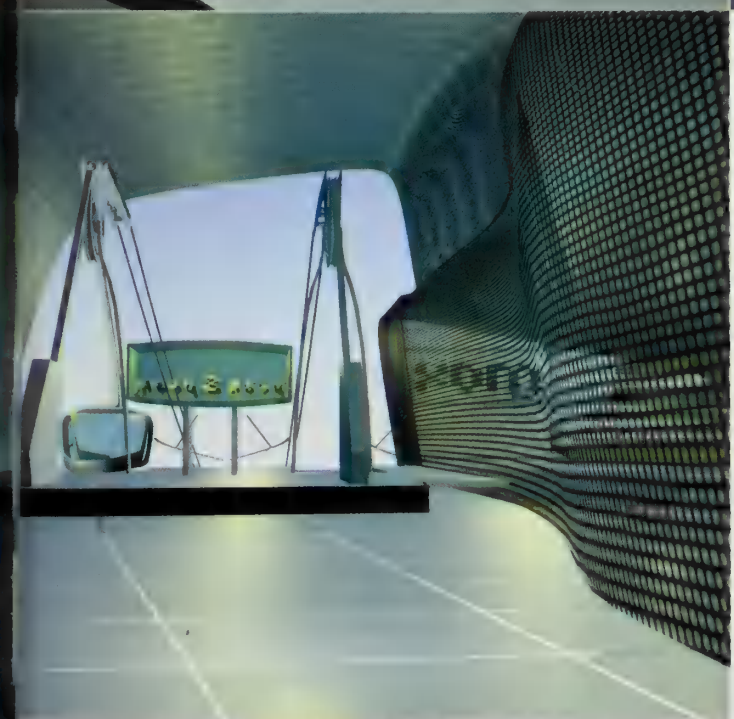


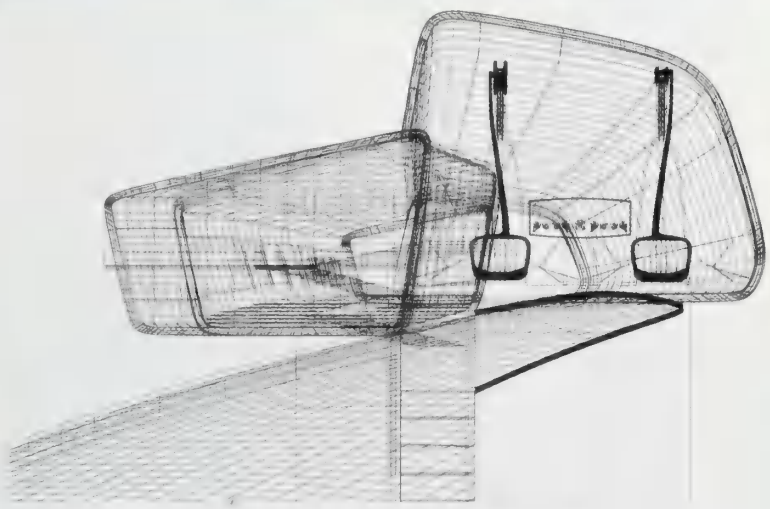


PHOTOGRAPHY: © GUY WINBOURNE (SCHOOL IN CHILE)



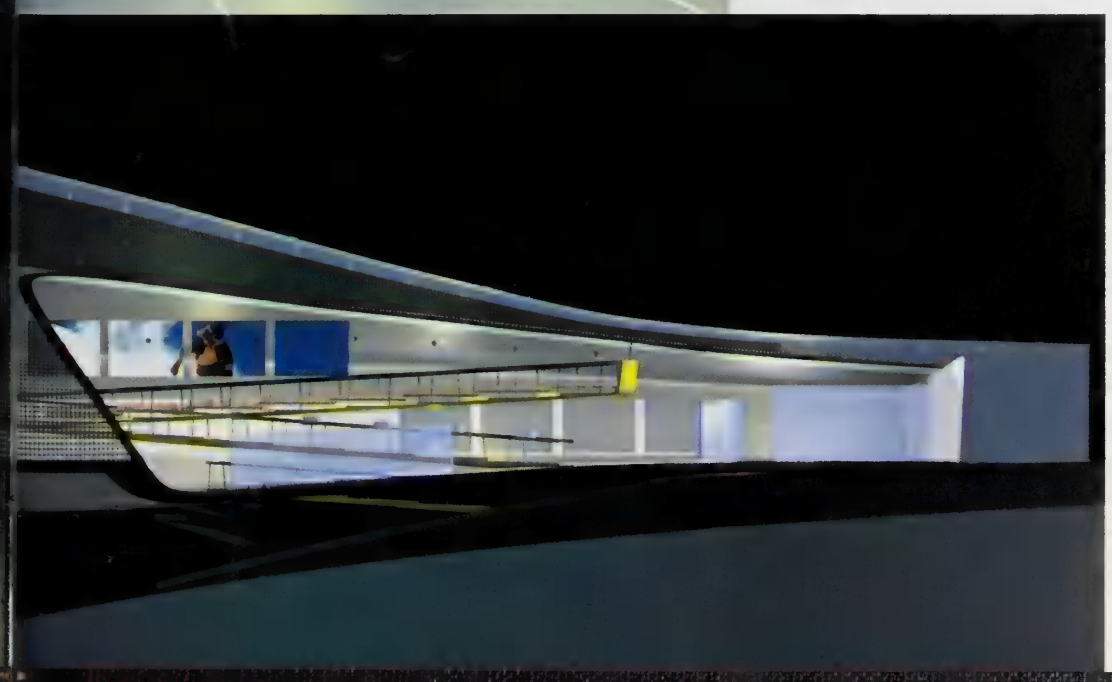






Museum of Extreme Culture, British Columbia, Canada

Part museum, part conference center, part Alpine transportation structure, this project would sweep visitors into the world of extreme winter sports. Working with E&S Envisioning & Storytelling, Lang Wilson not only designed the building but also the gondola and gondola station, and even a presentation used by the sponsor to attract investors to the project. The architects designed the center as a lightweight, prefabricated monocoque structure that could be delivered by helicopter and assembled quickly on site.





David Guthrie explores the material realities of his designs by building them himself

By Charles Linn, AIA

Designer: David Guthrie Design Workshop
Location: Houston
Date founded: 1990
Design staff: 1
Principal: David Guthrie
Education: Hendrix College, Conway, Arkansas, B.A., 1981; Rice University, Houston, M. Arch., 1990
Work history: Morphosis, 1977–81; Barton Meyer Associates, 1988
Key completed projects: Machinist's Garage, Spring Branch, Texas, 1991; Greenway Plaza Penthouse, Houston, 1993; Suhn Coil Spring Works, Houston, 1998; 55 Ferris Street, Red Hook, Brooklyn, New York, 2000
Key current projects: Woolf Apartment in Four Leaf Towers, Houston; Offices for Industrial Information Resources, Houston; Kaldi Café, Houston; Kansas Street House, Houston
Web site: www.fluidg.com

One of the most notable characteristics of David Guthrie's work is the extremely high level of craftsmanship. The materials he selects, which are precisely shaped to respond to how they will be used, reflect great confidence. They are also expertly assembled and finished.

Guthrie began to acquire an understanding of what it means to design and make things at an early age. His father was a doctor who practiced medicine in rural areas, where people were, by necessity, self-sufficient. One of these locales was a tiny seaside village in Newfoundland, Canada, where boatbuilding made a strong impression on David while he was still a boy. "When the weather begins to get cold, they skin the dry docks in plastic, so they have a sort of a translucent warehouse. And every winter they would build two wooden boats, just alike, side by side. When I was a kid, the fellows would let me hang out and watch. There was something very visceral about watching people make these vehicles that could cross the ocean; it was very powerful for me to witness the independence of people who made their own things. And the boats were beautiful."

The influence of watching the boatbuilders, and the experience Guthrie picked up later working in the extremely specialized area of tennis court construction, started to gel years later when he began to study architecture at Rice. "When I got there, I brought a certain amount of practical experience along with a fairly well-developed sense of spatial literacy—compositional and visual awareness—along with the physical experience with materials." While taking a certification course to use tools in the school's machine shop, "I realized that there are certain things that you can make with these machines and some things you can't; I began to develop a language that is based on subtraction—you mill away material, carving, almost—and assemblage."

Guthrie's independent project, a series of chair constructions, was executed entirely in the machine shop. Slicing away the backs, seats, and legs of several vintage wooden chairs, he replaced them with machined metal assemblies made from found and machined components. "In a way, this project describes how I like to work: The chairs are a direct expression," he says. "They don't have to answer to anything except the framework I set up, which was that they still had to work and be comfortable. I didn't have a client or a professor guiding me. It is interesting to me how seminal this experience was—there's kind of a thread through everything that I've done that leads back to this project."

Guthrie explains that it can be hard to trace that thread sometimes, but that his process is still the same. "Solutions come from searching, filtering for an idea that resonates," he says. "This can only come from seeing the material reality of what you're making during construction." He concludes that he is happiest when he is making things, but that it has become more difficult to find the time to do it. "It's so easy to turn architecture into an exercise where everything is at arm's length. You become engaged with it intellectually instead of physically. But there is something that happens when your hands touch the work. Alexander Pope calls it 'the intellect of the hands.' And you can't get at that any other way." ■

Guthrie's machined-component chairs are now in the permanent collection of the San Francisco Museum of Modern Art.







Suhn Coil Spring Works Offices
Houston

When asked to add an office for a maintenance man to Suhn Coil's existing space, Guthrie saw an inefficient layout, ugly walls skinned in vinyl, and dropped ceilings that left a third of the room height unused. When the office was done, it was immediately appropriated by a V.P. and Guthrie was asked to redo the entire office space—10,000 square feet. The offices continued to function during the work, executed at night and on weekends.



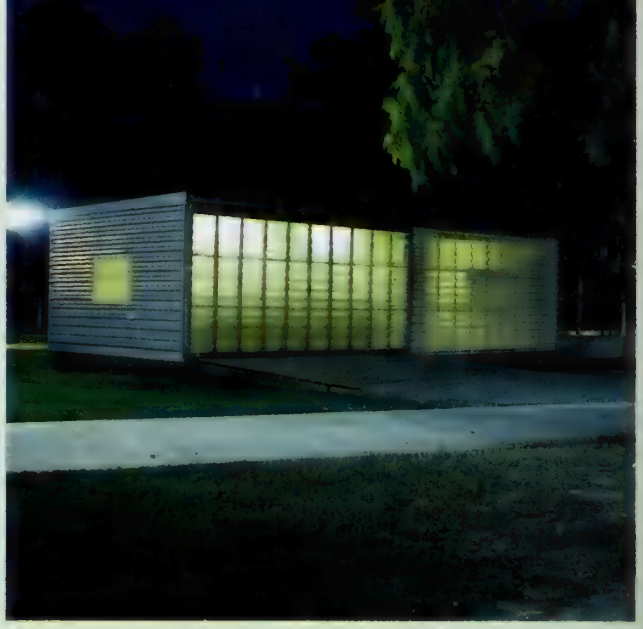




Concession Stand
Hermann Park
Houston

The fast-track construction of this concession stand started a day after the first project meeting—the parks department poured footings and a slab while Guthrie initiated the search for in-stock, off-the-shelf, galvanized aluminum and translucent skin materials. He found the material priced at a discount because it had been shipped in the wrong color, and started building. The stand opened in 10 days.

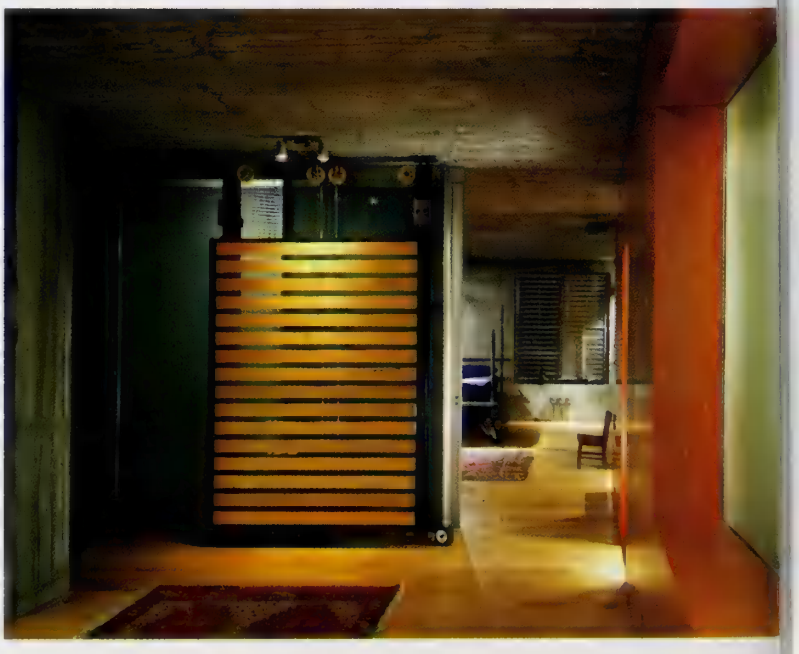




Greenway Plaza
Penthouse, Houston

Work on this penthouse apartment began with the demolition of a previous owner's faux-antebellum interior. Left with a fixed structural grid and plumbing locations, the open area was treated as a "site" and freestanding objects were built inside it. The entry (left) is a box made of fiberglass and steel studs. A system of counterweights and trolleys (below) raises the custom-made Murphy bed headfirst from the floor.





Machinist's Garage
Spring Branch
Texas

Guthrie's first project after graduating from architecture school was this garage. He and two friends built it for a machinist Guthrie had worked with at Rice University. "We focused a lot of extra time on the special pieces on this project, like the doors, hardware, and workbenches," Guthrie says. He prefers doing much of the work himself, although on larger projects this is usually too time-consuming.







PHOTOGRAPHS: © DAVID GUTHRIE (CONCESSION STAND); RICHARD



Shuhei **Endo** coils and curves corrugated steel, seamlessly weaving indoors and out

By Naomi R. Pollock, AIA

Architect: Shuhei Endo Architect Institute
Location: Osaka, Japan
Date founded: 1988
Design staff: 8
Principal: Shuhei Endo
Education: M. Arch., Kyoto City University of Art, 1986
Work history: Osamu Ishii & Biken Associates, 1986–88
Key completed projects: Cyclestation M, Maihara-cho, Shiga, Japan, 1994; Healtecture K, Takatsuki, Osaka, 1996; Transtation O, Sakai-cho, Fukui, Japan, 1997; Halftecture F, Fukui, 1997; Springtecture H, Shingu-cho, Hyogo, Japan, 1998; Rooftecture O, Shimizu-chu, Fukui, 1998; Rooftecture Y, Yamasaki-cho, Hyogo, 2000; Rooftecture B, Biwa-cho, Hyogo, 2000; Rooftecture K, Nishinomiya, Hyogo, 2000
Key current projects: Rooftecture M, Maruoka-cho, Fukui, 2001; Springtecture B, Biwa-cho, Shiga, 2001; Complex Project, Maihara-cho, Shiga, 2002; Office Building, Osaka-Shi, Osaka, 2002; Kindergarten, Maihara-cho, Shiga, 2002; Crematory project, Taishi-cho, Hyogo, 2003
Web site: www2c.airnet.ne.jp/endo

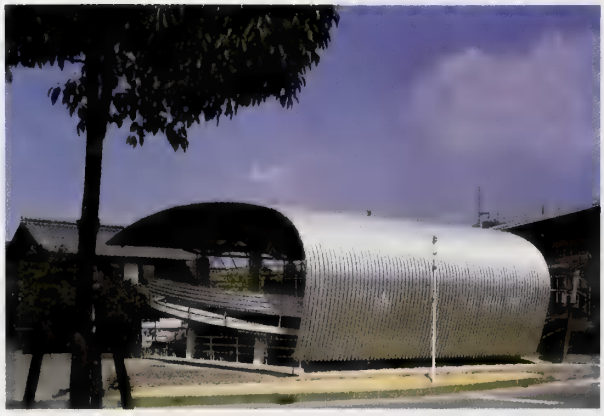
Japan gives rise to some pretty unusual buildings, but Osaka architect Shuhei Endo's curling ribbons of corrugated steel are in a class of their own. Instead of enclosing space with a standard system of roof, floor, and wall, Endo envelopes it in metal sheets, glass, and even reinforced concrete. "It's like the difference between a wooden box with discrete top, bottom, and sides and a traditional *furoshiki* wrapper [a gift wrap] made from a single square of cloth," he explains. In the resulting buildings, walls turn into roofs that turn into floors that turn into walls again, with interior spaces connecting seamlessly to the outdoors.

The architect's first foray into what he calls his "noncompositional" construction method was his 1994 Cyclestation M, a public bicycle-parking structure for a town 40 miles from Osaka. In commissioning the project, the local government did not really care how the building looked as long as it came in on budget and could hold 300 bikes.

Endo's solution is a cross between a lean-to and a streamlined machine—reminiscent of a bullet train whipping past. A single plane of three-millimeter-thick corrugated steel wraps the structure on one side and bends to cover the top but leaves its other three sides entirely open.

While Cyclestation's form and material seem inextricably linked, Endo maintains that the shape came first. "In fact," he says, "it could have been any number of materials." But concrete was too heavy and glass too expensive. Besides, corrugated steel had intrigued him since his student days. Commonly used in Japan for tunnels and drainage conduits, the sheet metal is cheap and strong yet light and malleable. Taking full advantage of these properties, his projects bend, curl, and mold the sheets and, in so doing, elevate a lowly, industrial material to a dynamic art form.

For Endo, the lure is not the material per se, but its capacity to give shape to his brand of spatial continuity. Straddling the line between open and enclosed, Springtecture H, a 1998 park structure, is a loose coil of steel sheet partially embedded in the earth. Resembling abstract sculpture, it actually shelters public toilets within its rising and dipping loops. Though glass and masonry partitions screen those areas needing the most enclosure, interior/exterior boundaries remain ambiguous.



Cyclestation M, completed in 1994, offers parking for 300 bicycles near a small town's railway station.

Adapting the concept to a larger format, Springtecture A, Endo's 1999 competition entry for an art museum, addresses multiple functions and spatial requirements with five steel strips instead of one. Though structurally sophisticated, the scheme retains flow between indoors and out.

Endo recently completed Rooftecture K, a small office building, and Rooftecture B, a market for local agricultural products. His strong ideas work well on a relatively modest scale, but it will be interesting to see what happens with larger projects. Still focused on the notion of continuous space, he has begun experimenting with different materials and more complex programs. Most of his work to date has been in and around the Kansai region, but we can expect Endo to play on a bigger field. ■





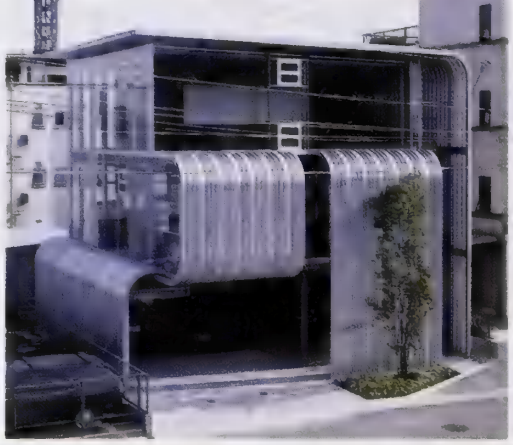
Springtecture H
Shingu-cho, Hyogo, Japan

This park structure of 1998 is a loosely furled spiral of corrugated sheet steel, partly submerged in the earth. Initially, it appears as an abstract sculpture—a great, expressive earthwork—but it actually shelters public toilets within its serpentine twists. Often merging exterior with interior space, it has glass or masonry partitions where privacy or security demands the greatest degree of enclosure.



Rooftecture K
Nishinomiya, Hyogo, Japan

This three-story office building for a construction company stands on a busy urban site in Nishinomiya, near Osaka. Composed of four interlocking elements of curved steel with expanses of glazing, the building has four distinct elevations. Responsive to site conditions and programmatic needs, the facades vary markedly in openness. The ground level houses a stockyard with parking space beneath a second-floor office area and top-floor meeting and president's rooms.







Rooftecture B
Biwa-cho, Hyogo, Japan

This market—featuring warehouses, shops, and processing areas for local agricultural products—lies on a flat landscape near a lake. The three low-slung buildings were sited to accommodate independent but cooperative functions. Varying degrees of openness and enclosure allow for communication between the buildings and fusion between indoor an outdoor space.



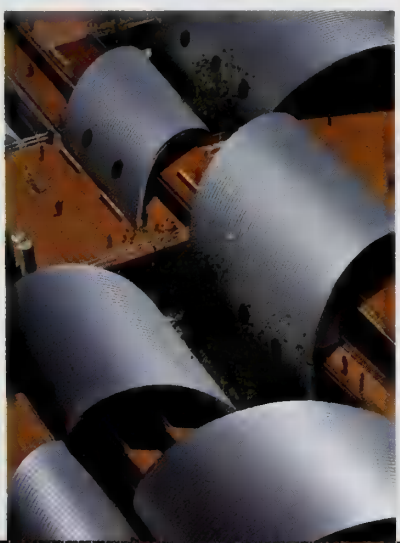


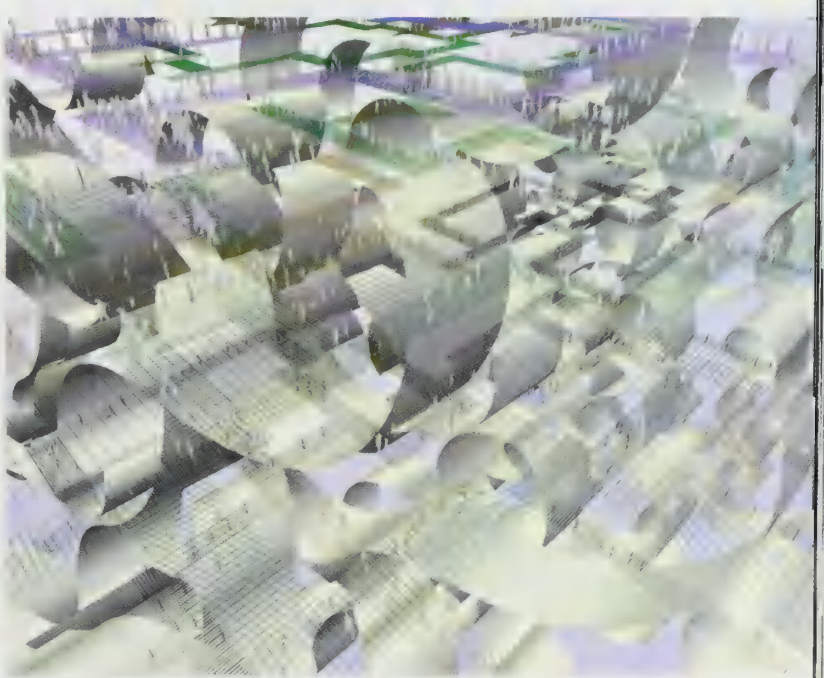




Springtecture A
Aomori, Japan

This competition entry for an art museum in northeastern Japan uses repeated forms to generate a versatile and rich architecture. The scheme integrates five continuous, winding plates of corrugated steel with a series of horizontal walkways. The coiled ribbons of steel have the apparent potential energy of springs, but this tension is balanced by the geometry's calm consistency. The rolling steel forms also engage in a dialogue with the mountain range behind them. In the complex's fluid interplay of space, indoor and outdoor areas become equally important.





PHOTOGRAPHY: © KEI SUGINO (THIS PAGE)



Hernán Díaz Alonso seeks a balance between technology and romanticism

By Ingrid Whitehead

Architect: Xefirotarch
Location: Los Angeles
Date founded: 1999
Design staff: 4
Principal: Hernán Díaz Alonso
Education: Universidad Nacional de Rosario, Argentina, degree in architecture, 1995; Columbia University, M. Arch., 1999
Work history: Enric Miralles Architects, 1996; Eisenman Architects, 2000–2001
Key completed projects: SPY Store, Rosario, Argentina, 1997; Munoz Bookstore, Rosario, 1997; Happening Cigars store, Rosario, 1998
Key current projects: ETNADE School, Rosario, Argentina; Metro Plaza, Lexington, Ky.
Web site: www.xefirotarch.com/Movie1.swf

Bold statements turn up often when architect and educator Hernán Díaz Alonso works on his designs, teaches at SCI-Arc, or engages in conversation. "Something is wrong with architecture," he says. "It's not relevant." When this passionate remark gets attention, he explains, "architecture is nobody's first priority, and it is not necessary to define a lifestyle."

But while the Argentinian-born Díaz Alonso says he accepts the irrelevance of his chosen profession with the general public, he also believes strongly in the cultural importance of architecture and strives to make his work "matter" on a cultural level. He uses the words of his former employer, Peter Eisenman, to explain: "Architects should give the people what they would want, if only they knew what it was they wanted."

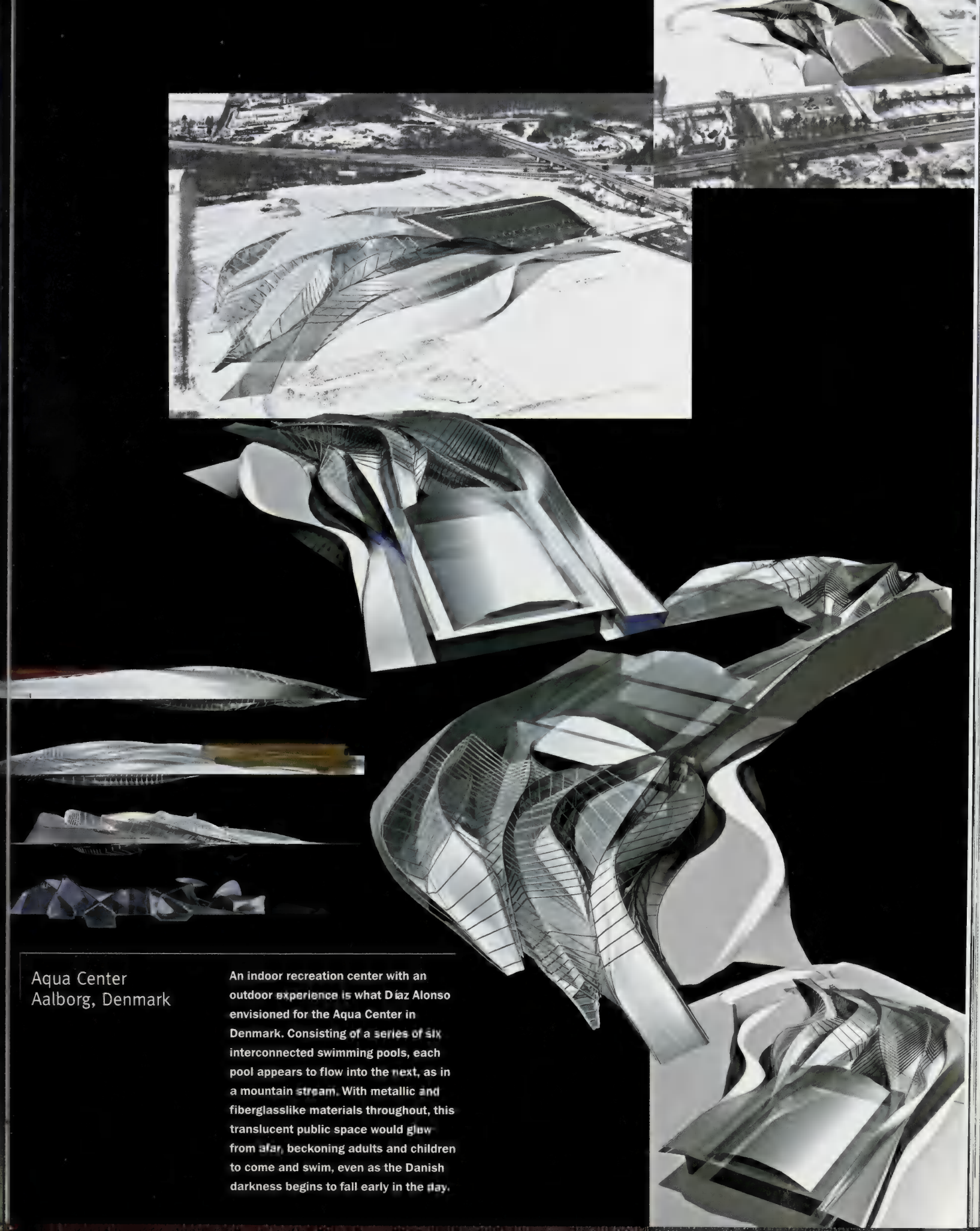
Díaz Alonso also worked for the late Enric Miralles, and, armed with the experience of working with two prominent architects, he began Xefirotarch (a name he claims has no significance except that it's neither an English nor a Spanish word) in Los Angeles in 1999. Adamant in his regard for Eisenman and Miralles, he states, "Enric is my hero, and Peter is the most important cultural figure in the U.S."

For Díaz Alonso, it was Miralles who gave him the design methodology that has shaped his work. Like Miralles, Díaz Alonso thinks of each new project as a continuation of the last; he sees his work as one, ever-evolving project. "Enric blurred theory and practice for me," he says. "He was the person who taught me that a vase of flowers can become a stadium, if you just understand how." Evidence of this methodology appears in the designs shown on the following pages. One could imagine, for example, how the Aqua Center in Denmark, with its overlapping pools and multiple planes, could morph into the Queens Museum's flexible, circus-tentlike pods. In his designs, Díaz Alonso wants to attain static expressions of dynamic processes in a structure, not just isolated, singular moments. Computer-driven and based on form rather than materials, his work is not about finding final solutions, but rather it is concerned with flow and change and intuition, and finding the balance between the romantic view of architecture and technology. "My design is about exploring arbitrary ideas. Intuition is arbitrary, while inspiration is random. My work is based on intuition, not inspiration."

Intuition is also what he asks his students to look for when creating their own work. He says that because he teaches master's classes, he has more freedom to explore intellectual approaches in the studio with students. "It's a laboratory of ideas, really," he says. "I learn with the students, because I don't teach what I've already done, I teach what I'm trying to do."

One thing Díaz Alonso is trying to do is bring good design to a greater audience, which is why he competes for public spaces, such as the Queens Museum or Lexington Plaza in Kentucky. His competition-winning design for Lexington will insert some controlled wilderness into a central city plaza. Yet despite attempting to reach a wider public, he still wants to do it his way, which may not always mean staying within accepted boundaries.

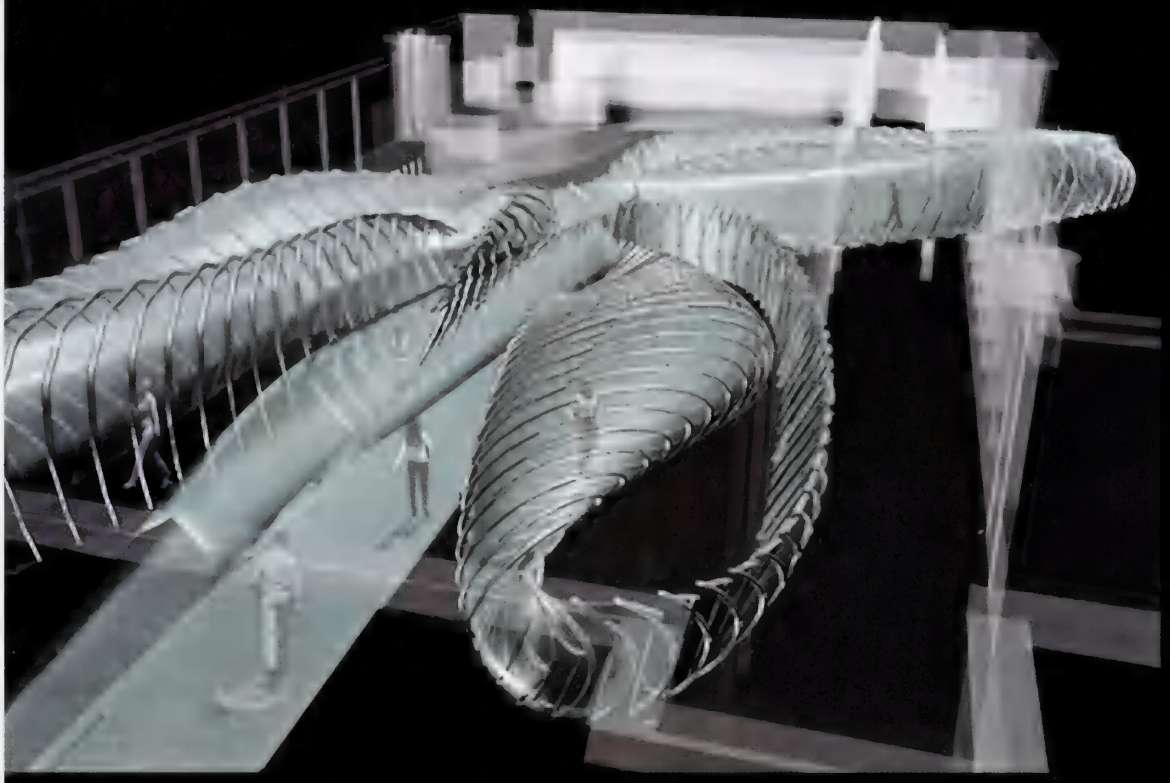
"The process of architecture has to be corrupt," he says. "I really believe you have to break the rules to produce the best work." ■

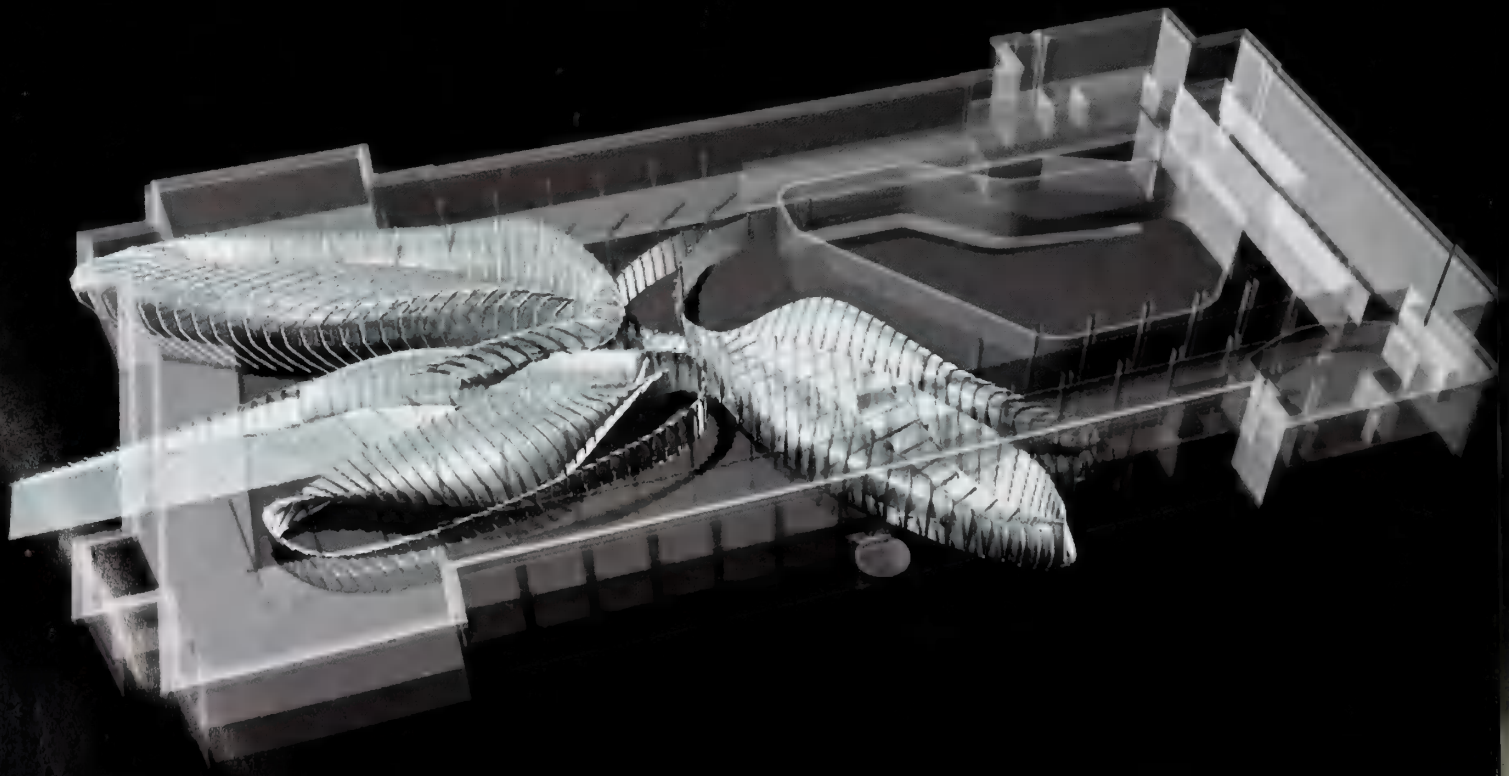


Aqua Center
Aalborg, Denmark

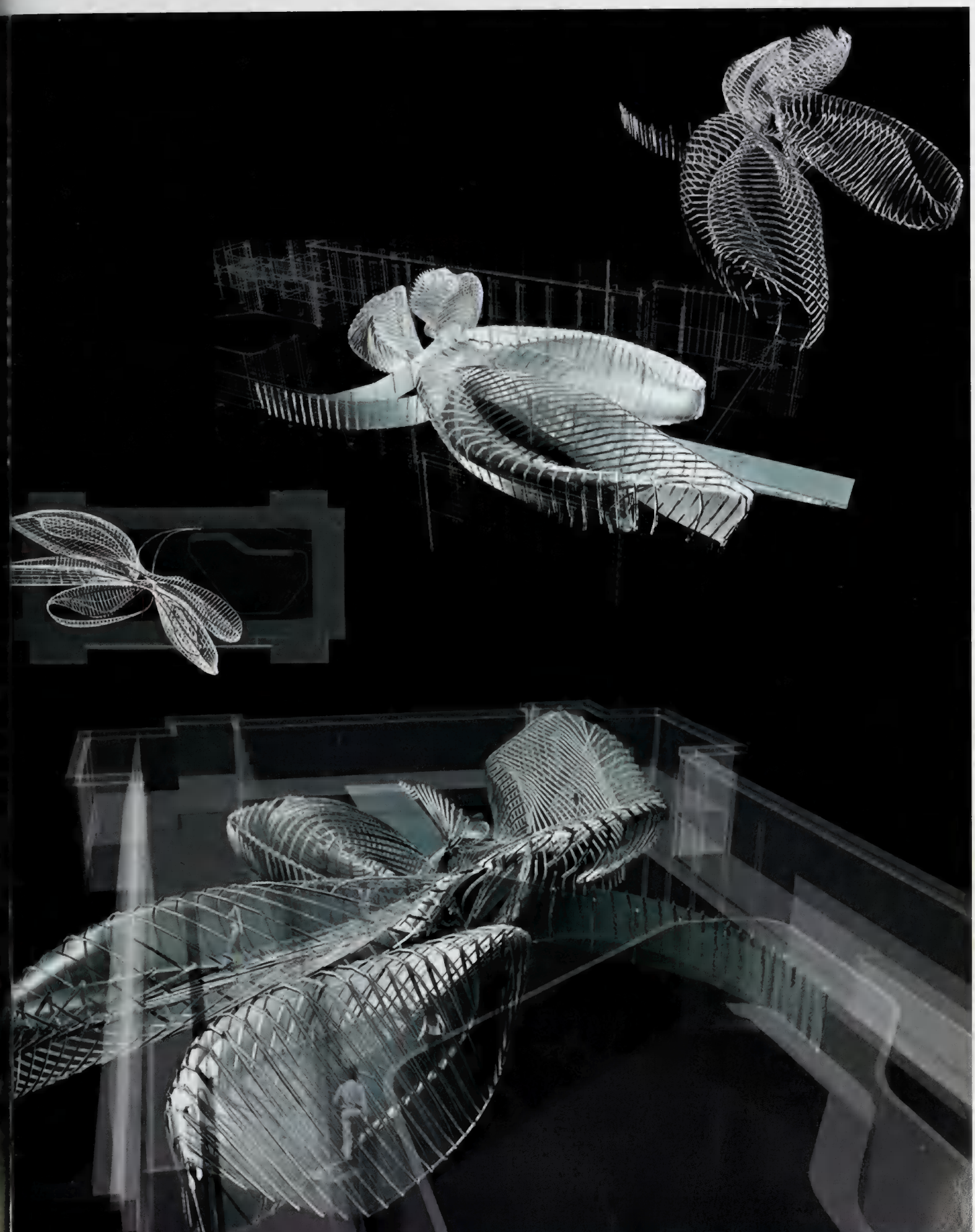
An indoor recreation center with an outdoor experience is what Díaz Alonso envisioned for the Aqua Center in Denmark. Consisting of a series of six interconnected swimming pools, each pool appears to flow into the next, as in a mountain stream. With metallic and fiberglasslike materials throughout, this translucent public space would glow from afar, beckoning adults and children to come and swim, even as the Danish darkness begins to fall early in the day.

Queens Museum of Art
Queens, New York



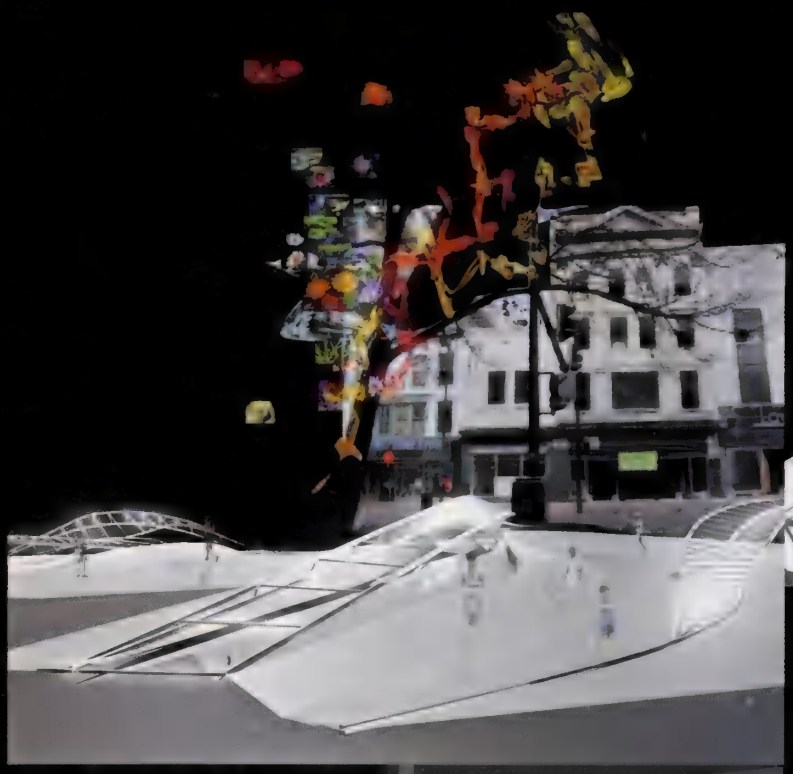


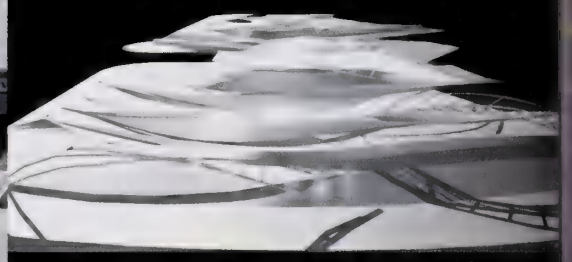
With a call for extreme ideas, the compe tion for the expansion of the Queens Museum of Art gave Díaz Alonso the opp tunity to let his imagination go wild. The architect's priority for the design was no have the museum be overshadowed by t many hallowed art spaces in New York C His proposal, done with architects Chen Tsu and Shan-mei Sun, incorporates a futuristic structure reminiscent of a circu tent, inside an existing building that onc housed an ice-skating rink. The scheme flexible and contradictory—permanent y temporary, as the tubular metal and fibe glass panels can be disassembled and reconstructed in different configurations depending on the installations exhibited within. At press time, the museum had na rowed the competition to a shortlist of fiv firms, which, unfortunately, did not inclu Xefirotarch's inventive design.

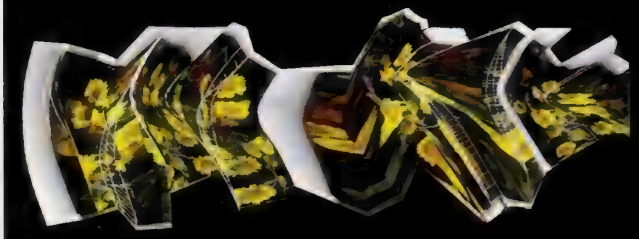


City Plaza
Lexington, Kentucky

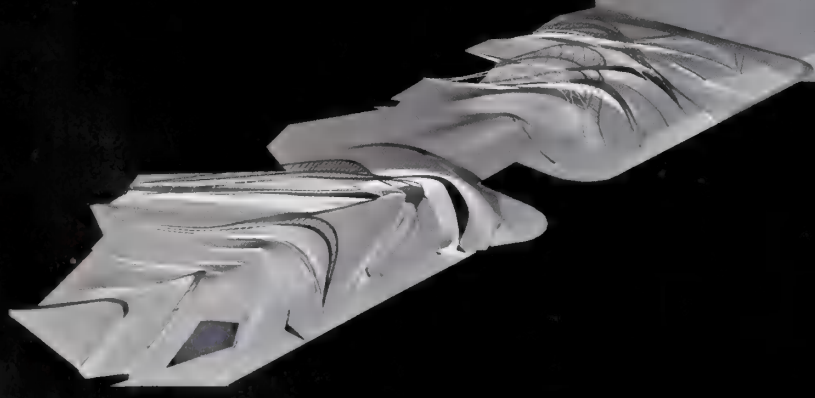
This winning competition entry for a central plaza in Lexington, Kentucky, is envisioned as an out-of-town getaway in the center of the city. The landscape is like a collage of greens, ponds, and fields of flowers. An intricate lighting scheme completes the plaza. Díaz Alonso worked with golf-course designers to bring elements of a manicured landscape in concert with nature, to create a public space that would be dynamic with or without human presence.

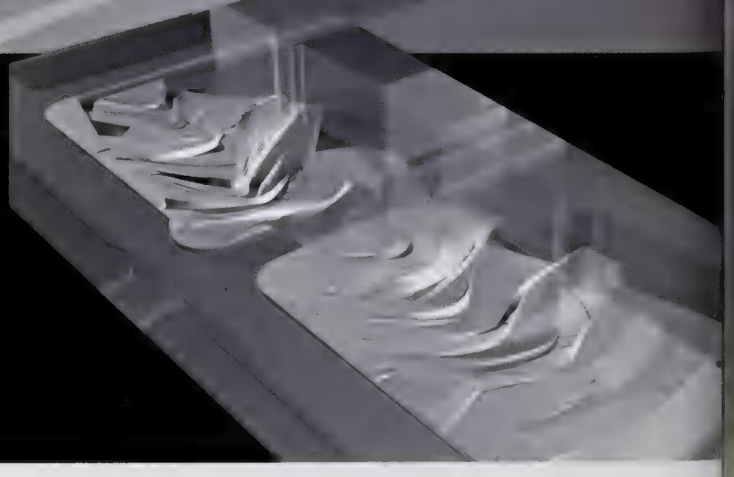


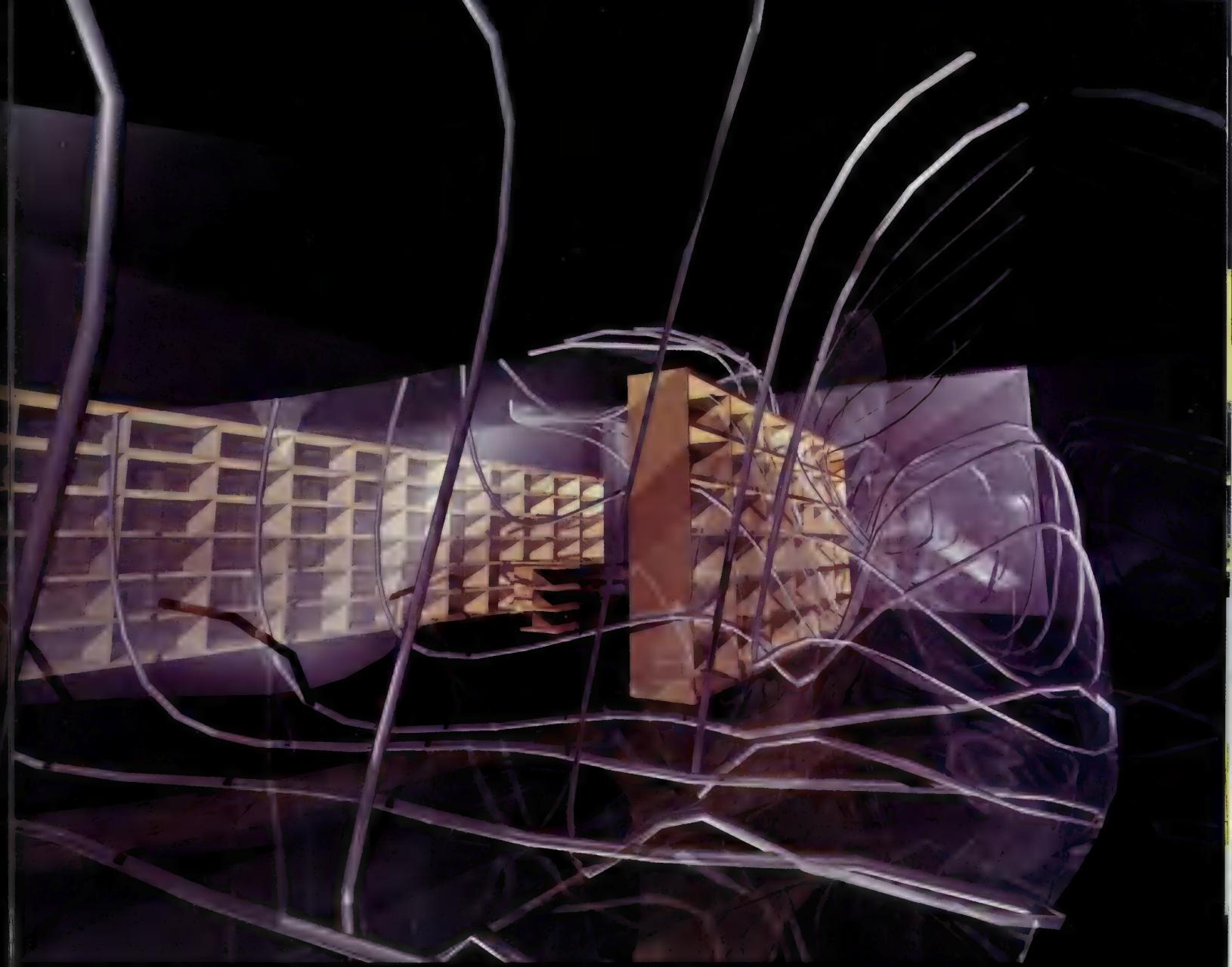






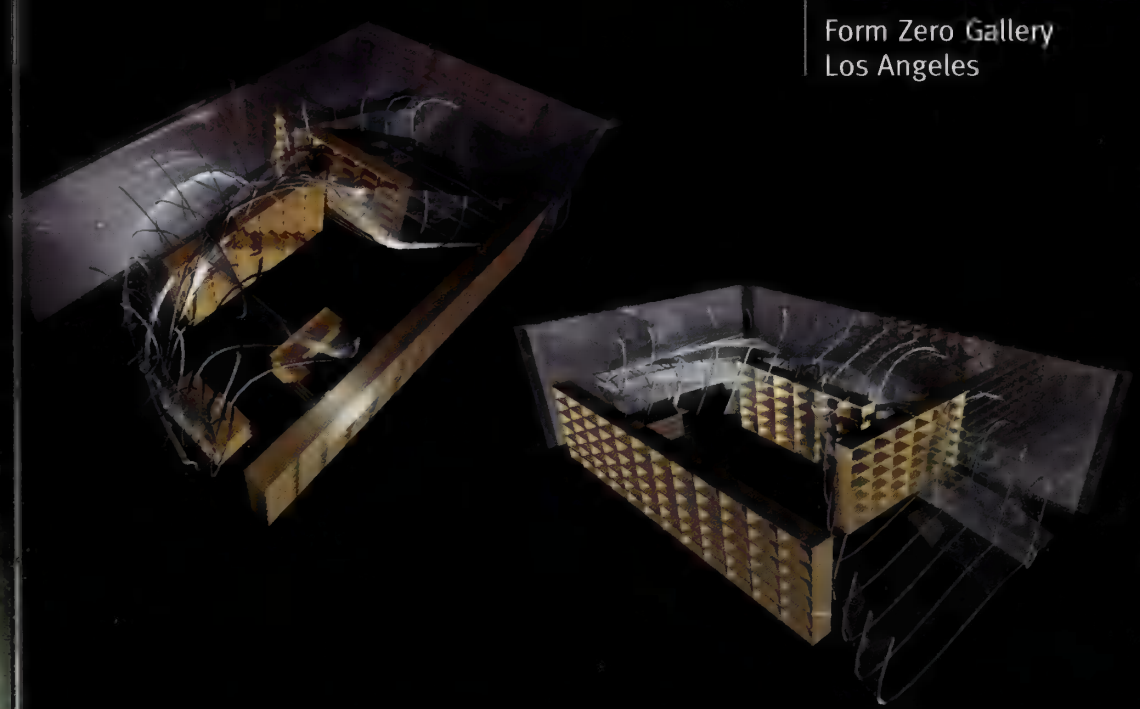






Form Zero Gallery
Los Angeles

The proposed design for the Form Zero Gallery, an architectural bookstore/art gallery, takes art and objects to a new level. Contradictory elements suffuse the space, with criss-crossing metal tubes twisting around traditional wooden shelves containing books for sale. Form Zero will host art and architectural exhibits that change every two months.





Richärd & Bauer Architecture transforms pieces of Arizona's desert sprawlscape

By Suzanne Stephens

Architect: Richärd & Bauer Architecture
Location: Phoenix, Arizona
Date founded: 1996
Design staff: 8
Partners (left to right): Kelly Bauer, IIDA; Stephen Kennedy, AIA; James Richärd, AIA
Education: Richärd: University of Arizona, B.Arch., 1985; Bauer, University of Arizona, B.A., 1982; Kennedy, University of Arizona, B.Arch., 1986
Work history (all principals): Anderson DeBartolo Pan, Tucson and Phoenix, 1985–94; Smith Hinchman & Grylls, Phoenix, 1994–95
Key completed projects: Mesquite Branch Public Library, Phoenix, 1998; Glendale Community College, Glendale, Arizona: Physical Sciences Building, 1999, Mathematics Classroom, 1999, Faculty Office Building, 1999, Library Media Center, 2000; Academic Technology Building, University of Arizona, Sierra Vista, Arizona, 2001
Key current projects: Glendale Community College, Glendale: Student Services Building, Fine Arts Building; Meinel Optical Sciences Research Laboratory, University of Arizona, Tucson; Quincie Douglas Library and pedestrian bridge, Tucson; Wilson Residence, Scottsdale, Arizona; Dillon Residence, Phoenix; Synhorst Residence, Phoenix; Carline Howard Residence, Phoenix
Web site: www.richard-bauer.com

It may seem odd that James Richärd, AIA, and Kelly Bauer have never worked for Will Bruder. Why? Because Bruder and talented architects spawned by his office, such as Wendell Burnette and Rick Joy, have turned southern Arizona into a hotbed of design. Bruder's modernist sensibility, which enriches taut, flat planes and shifting geometries with rugged, tough materials, can be seen as emblematic of the newer generation's affinities. It is a sensibility that is also evident in the work of Richärd & Bauer, a five-year-old firm that includes a third partner, Stephen Kennedy, AIA. All three principals met in the Tucson office of Anderson DeBartolo Pan and later worked in the Phoenix office of Smith Hinchman & Grylls. Both firms are known for large-scale commercial and institutional work. Not very Bruder-like.

Ironically, Richärd & Bauer's first project was to expand and renovate a library designed by Bruder in 1985. The Mesquite Branch Public Library, completed in 1998, keys off the original concrete structure, using a light steel and tilt-up concrete construction to extend the building from a new south-facing entrance. The design drew the interest of public-sector clients, as did its reasonable cost. "Ninety percent of our work is for low-bid public projects," explains Richärd. "We look for affordable materials with intrinsic beauty—such as tilt-up concrete left in its raw state—which still express the building's tectonics."

The firm feels that part of its competitive edge in attracting public work comes from the makeup of its practice, in which each principal brings a different set of skills to the project. While Richärd and Bauer both work on programming and space planning, Bauer, an interior designer, plays another significant role. "I make sure everything—lighting, furniture—fits with the big idea that Jim has set up," she explains. Meanwhile, Kennedy is in charge of production, including documentation, coordination of engineers, and construction supervision. "This level of differentiation," notes Richärd, "is more typical of large offices."

The firm has a number of projects on the boards, including an extensive renovation and expansion of Glendale Community College, an architecturally unappetizing campus built in the mid-1960s on the west side of Phoenix. In 1999 the firm completed a new 33,800-square-foot physical sciences building there, and spiffed up an old one for a mathematics building, as well as adding a faculty office facility. More recently, it finished renovating the 42,000-square-foot library/media center and is currently working on a 17,000-square-foot student services complex, comprised of both old and new components, plus renovating a 16,000-square-foot building for fine arts.

"Our major effort has been to get natural light into all the spaces," says Richärd about the Glendale work. The manipulation of light and shadow plays a dominant role in the firm's work. But design responses to a bright sun, desert vegetation, and mountains are not the only elements of the Arizona environment that interest the firm. James Richärd talks about its desire to take on the nondescript areas of the sprawling sunbelt cities of Arizona. "We want to reclaim the parking lots and import themes from desert architecture back to the 'disturbed sites.'" So far, as their low-scale work indicates, they are making a worthwhile dent in this often unremarkable suburban landscape. ■





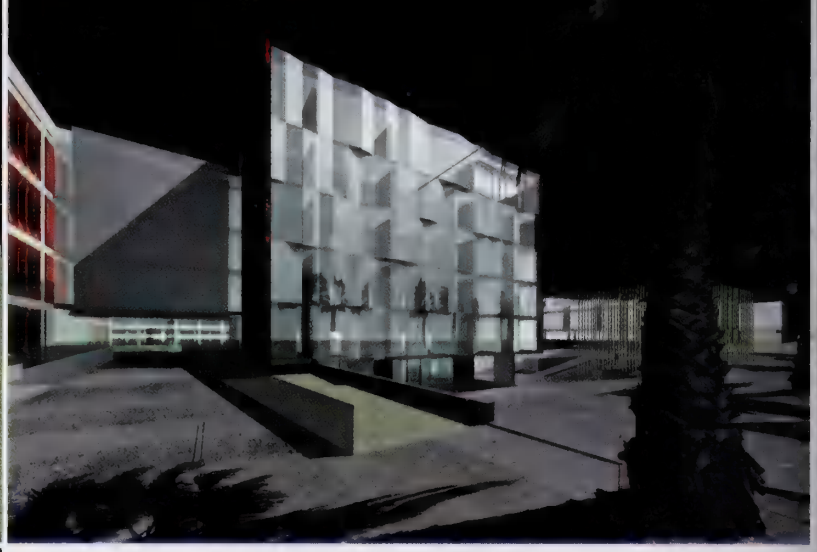
Mesquite Branch Public Library, Phoenix

This renovation and expansion of an existing 10,000-square-foot building originally designed by Will Bruder was Richärd & Bauer's first commission, in 1996. The total project is now 18,000 square feet. The new spaces of tilt-slab concrete construction and light steel fan out from the existing rectilinear structure. Exposed trusswork allows for a column-free interior with a sense of openness.









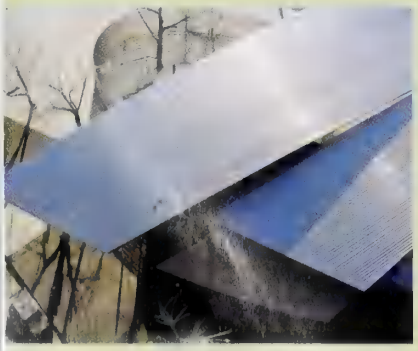


Meinel Optical Sciences Research, U. of Arizona, Tucson

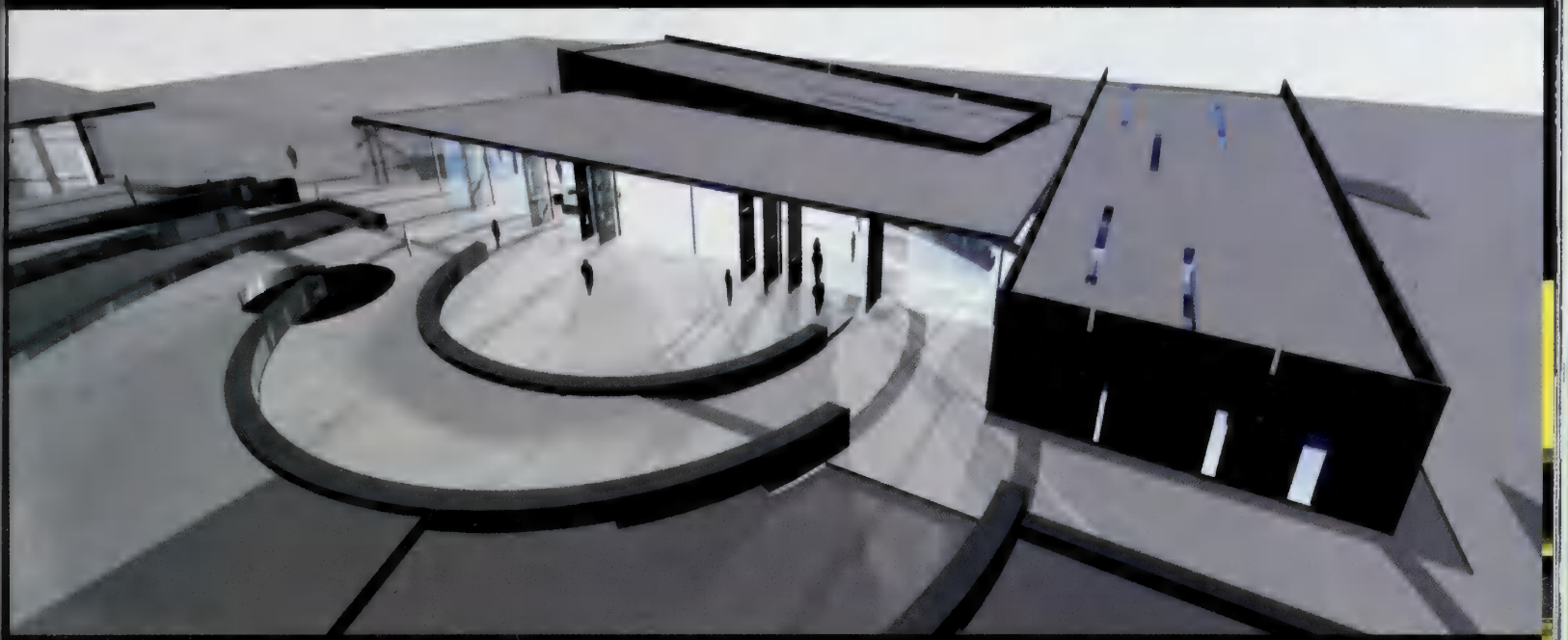
In creating a 47,000-square-foot plant for an optical science research laboratory, Richärd & Bauer brought extra daylight into the core of the five-story building by cutting three vertical shafts into the flat-slab concrete structure, which is enclosed on all sides by a screen of treated copper panels. The facade, oriented to the north, is surfaced in butt-jointed transparent and translucent glass.

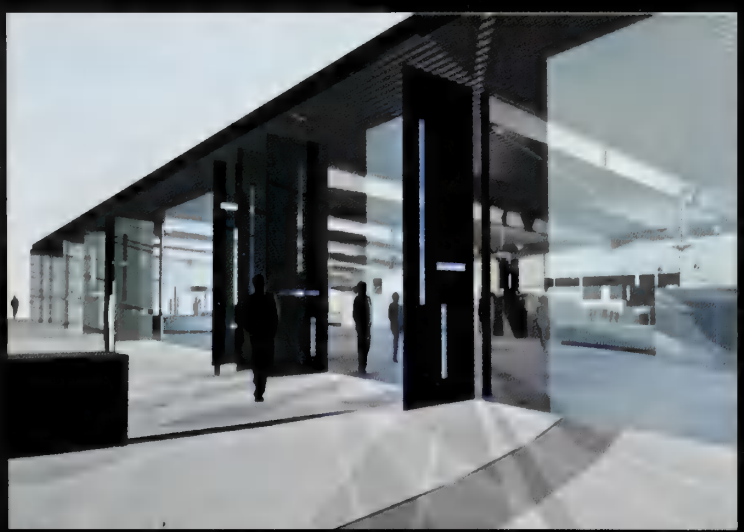
Quincie Douglas Library and Pedestrian Bridge, Tucson

Richärd & Bauer combined a 10,000-square-foot library and 400-foot-long pedestrian bridge over a six-lane road, in a scheme that is planned to begin construction in early 2002. The zinc-coated-steel roofs of the library and the bridge are supported by a poured-in-place-concrete and steel column structure. Located in a low-income area, the design is geared to make it easy for the children living in a residential section on one side of the highway to walk to a park and the library on the other side.









Student Services, Glendale Community College, Phoenix

The firm's fourth project for Glendale Community College, on the west side of Phoenix, comprises three renovated buildings and a new one. The existing structure is predominantly poured-in-place concrete with terra-cotta masonry, while the addition uses tilt-slab construction. The 17,000-square-foot complex houses enrollment, financial aid, and related services for the 22,000 students. Large pivoting doors of perforated metal give access to a courtyard, defined by concentric rings of low concrete walls.





SYSTEMarchitects navigates the intersections of nature, cities, and architectural form

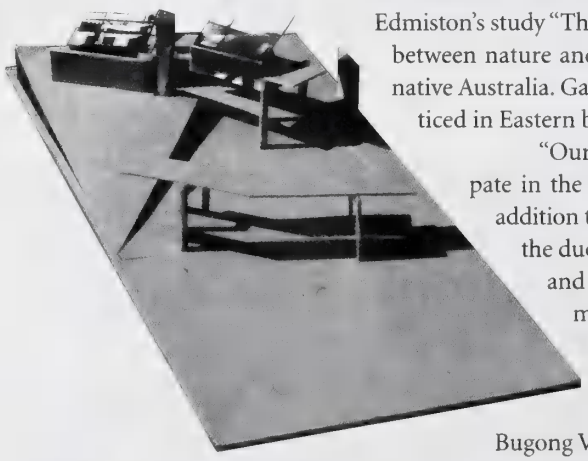
By William Weathersby, Jr.

Architect: SYSTEMarchitects
Location: New York City
Date founded: 1997
Design staff: 3–6
Partners: Jeremy Edmiston and Douglas Gauthier
Education: Edmiston: University of Sydney, B. Arch., 1989; Columbia University, M. Arch., 1992; Gauthier: University of Notre Dame, Bachelor of Art History and Architecture, 1985; Columbia University, M. Arch., 1992
Work history: Edmiston: Harry Seidler & Associates Architects, 1983–91; Bernard Tschumi Architects, 1992; Emilio Ambasz & Associates, 1994–97; Gauthier: Holt Hinshaw Pfau Jones, 1986–90; Bernard Tschumi Architects, 1992–93; Holt Hinshaw Jones, 1994
Key completed projects: Kindergarten and Youth Center, West Berlin, Germany, 1997–98; Sleep Center 8, Astoria, N.Y., 1998; Fish Residence, New York City, 1999; Rankin Residence, New York City, 1999; "Second Nature" installation, The Architectural League of New York, New York City, 2000; Carrier Sofa prototype, 2000; Fulcrum Stair, New York City, 2001
Key current projects: Parish House, New Haven, Australia; Feeley/Zimmerman House, Prague, Hungary; Housing development, Bugon Valley, Australia
Web site: www.systemarchitects.net

The four-year-old New York City partnership of Jeremy Edmiston and Douglas Gauthier, SYSTEMarchitects, projects a shared sensibility, an architectural yin and yang. The architects' published texts, speculative project proposals, and built works balance thorough research and programmatic improvisation, intellectual depth and aesthetic precision. In *Second Nature*, an exhibition at the Architectural League of New York last year, the partners offered a manifesto whose gravity was defused by its first statement, a one-liner borrowed from Woody Allen: "I've never felt at one with nature—I am at two with nature." Likewise, although the architects are seasoned academics—former Fulbright scholars now both teaching at the City College of New York and Columbia University—their work is not circumscribed by theory alone. They spent years tackling a range of building types (theaters, schools, housing) while working on three continents for architects such as Bernard Tschumi and Emilio Ambasz.

The partners say a central goal of their practice is to challenge preconceived typologies and organizational systems within the built environment. "Take the romanticized notion of nature, for example," Edmiston says. (That's where Woody's punchline comes in.) "The opposition of the natural world and the urban landscape is a manmade construct—even Central Park is a synthetic environment." Adds Gauthier: "Architecture is about creating a dialogue between inside and outside. Our work investigates enclosures and infrastructure, rather than focusing heavily on formal composition. We examine how the parts of a building plug in to a layered whole, engaging the multiple contexts of a site."

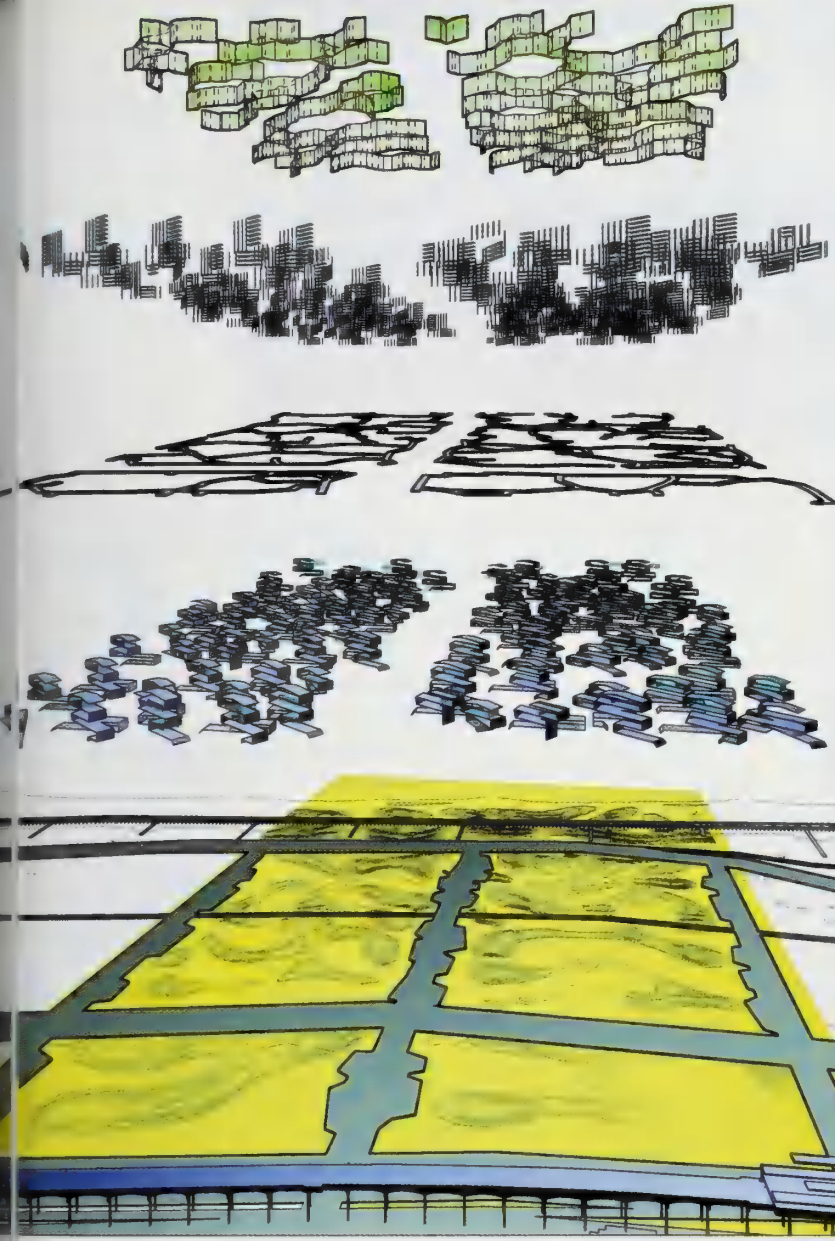
The partners met as Columbia graduate students and consider academia an engine that drives their work. "Research is another way of framing what your designs seek," Edmiston says. "And teaching becomes an extension and sounding board that keeps your ideas moving." Edmiston's study "The Green Cyborg" examined the architectural overlap between nature and technology, citing aboriginal structures from his native Australia. Gauthier, meanwhile, has studied Modernism as practiced in Eastern bloc countries during the Cold War.

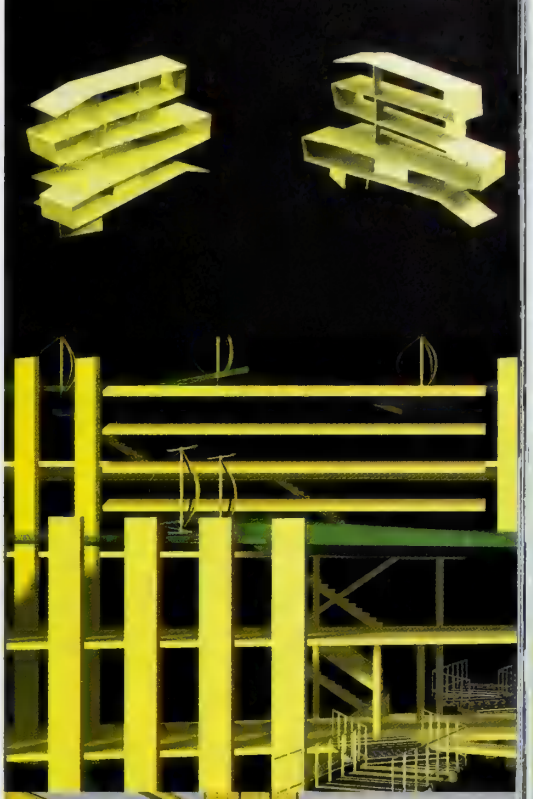


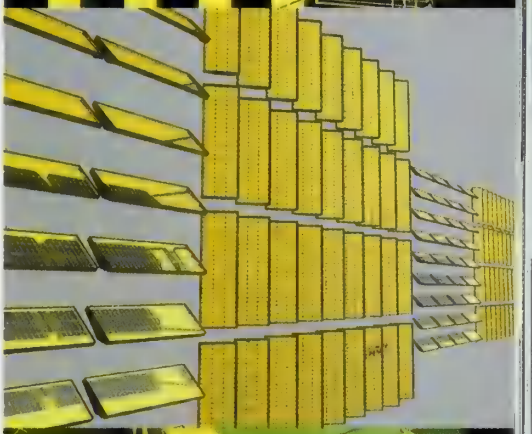
A model for a Shelter Island, N.Y., house combines live/work space.

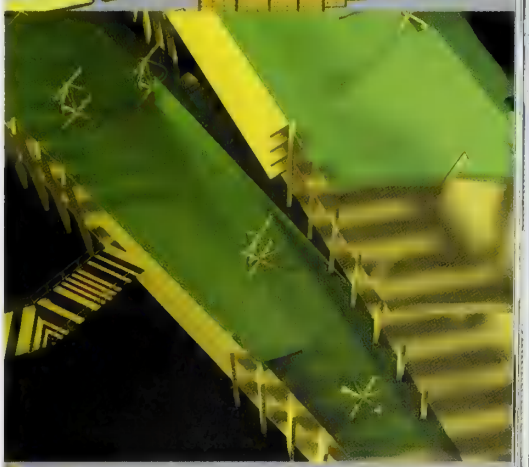
"Our practice affords a platform from which to participate in the broader culture of architecture," Gauthier says. In addition to a roster of residential lofts in downtown New York, the duo has completed workspaces for a software company and a sleep-disorder clinic, collaborated on large-scale master plans for waterfront redevelopment projects in the U.S. and France, and designed houses on Shelter Island, New York, and in Sydney. They currently are analyzing 70 acres in Australia's remote Bugong Valley, where they will build three houses.

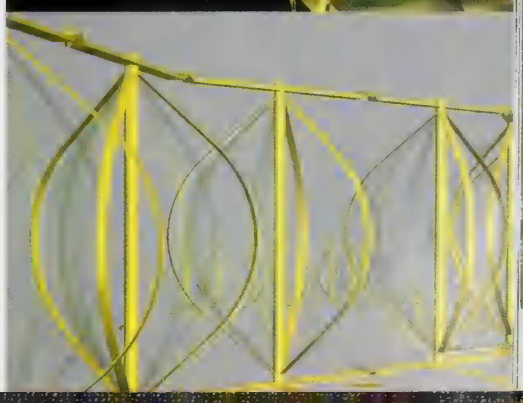
The partners embrace digital media full-tilt. Inspired by the graphics of skateboard culture and Japanese comic books, they manipulate pixels and vectors to advance a signature style of architectural rendering rich in color and detail. The firm's Web site is its own virtual world; animated graphics, multiple perspectives, and a vortex of words and pictures reveal the many levels of thought at work—and at play. ■





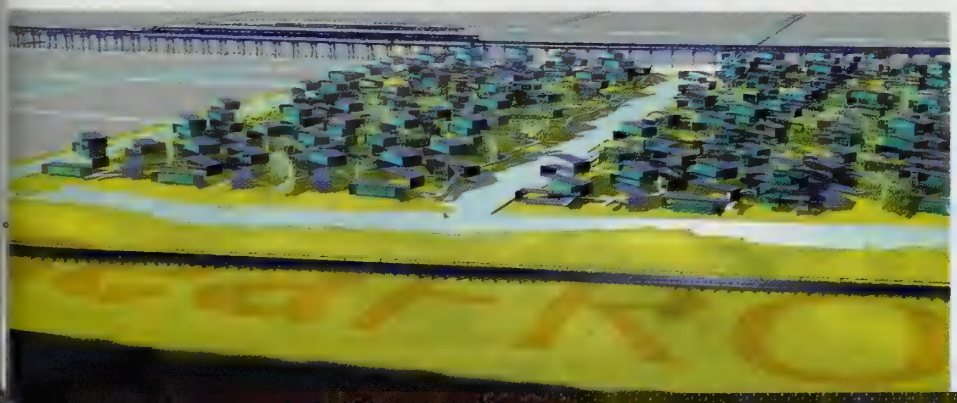






Seafront
Far Rockaway, New York

Designed with Michael Sorkin and SHoP Architects, a proposed master plan for a residential development focuses on the functional relationship between housing and the urban landscape, rather than on typical multihousing forms. Ecologically sensitive elements, including arbors, bridges, wind machines, and photovoltaic cells create an infrastructure that weds urban and natural terrain.









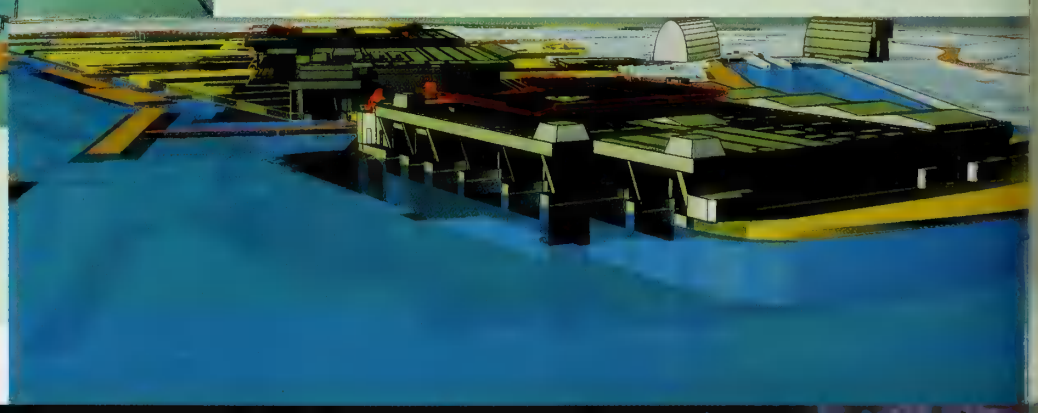
Day Care/Youth Center
West Berlin, Germany

With architects Frank Barkow and Regine Leibinger, Gauthier designed two buildings to house a day care/kindergarten and an activities center for older children. The kindergarten is a concrete-framed building, while the youth center is wood framed. The north facades of both structures feature tongue-and-groove larch siding. Some roofs are planted with indigenous grasses; others are clad in standing-seam aluminum.



Lorient Redevelopment
Normandy, France

Reprogramming a military submarine base in France—a relic of World War II—for mixed commercial use has engaged Edmiston and Gauthier's exploration of architectural meaning on many levels: political, technological, historical, ecological, and economic. "These installations are laden with meaning; they are our ruins, the Easter Islands of the Nuclear Age," says Gauthier. By removing existing support and peripheral structures, the architects have made the bunkers an active focus of civilian life along the waterfront.



Lot 49 Apartments
New York City

In this unbuilt project, a dilapidated tenement in the East Village was renovated into a live/work cooperative. The plan extends the building to the south and adds a fifth floor, with a mezzanine along the facade to enhance the continuity of the street edge. A new western wall wraps around to the south, while perforated enclosures overlook the rear garden. A grid infilled with a variety of glass defines the southern elevation.









Escher Gunewardena
find the essence in both new work and iconic restoration

By Sarah Amelar

Architect: Escher GuneWardena Architecture
Location: Los Angeles
Date founded: 1995
Design staff: 5
Principals: Frank Escher and Ravi GuneWardena
Education: Escher: Federal Institute of Technology (ETH), Zurich, Diploma in Architecture, 1987; GuneWardena: California State Polytechnic University, Pomona, B. Arch., 1984
Work history: Escher: Meyer & Allen Associates, Architects, Los Angeles, 1989–91; Escher Design and Planning, Los Angeles, 1991–94; Escher & Olgiate, Los Angeles, 1994–95; GuneWardena: Craig Combs Associates, Newport Beach, Calif., 1984–87; David Jay Flood Architects, Santa Monica, Calif., 1987–93
Key completed projects: Electric Sun I, Los Angeles, 1997; Hillside Residence, Los Angeles, 1999; Jamie Residence, Pasadena, Calif., 2000; Chemosphere Restoration Phase I, Los Angeles, 2000; Electric Sun II, Los Angeles, 2000; Sharon Lockhart Installation, Museum of Contemporary Art, Chicago, 2001; Electric Sun III, Los Angeles, 2001; Fernando Residence, Nanaimo, British Columbia, 2001
Key current projects: Zugsmith Residence, Sherman Oaks, Calif., 2002.; Sola Residence, Los Angeles, 2002; Pho Café, Los Angeles, 2002; Richard Neutra House addition, Los Angeles, 2002

It's a bit like playing ping pong," says architect Frank Escher of the creative back and forth he and his partner, Ravi GuneWardena, strike up when generating their designs. Intrigued by the subtleties of spatial perception, movement through built settings, and play of light, both architects favor pure forms akin to Minimalist sculpture of the '70s and '80s—but they arrived at similar architectural interests via contrasting routes.

While Escher grew up in Switzerland, immersed in what he describes as "controlling and logical perfectionism," GuneWardena spent his first eight years in Sri Lanka, inspired by an elegantly pared-down Buddhist aesthetic that accepts, even embraces, imperfection. Challenging each other with their differences, the architects share a drive, says Escher, "to discover what's inherent in a project, what's already there."

They made such a discovery while designing three Los Angeles tanning salons: Electric Sun I, II, and III. Here, a serendipitous effect of technology—ultraviolet rays spilling over the tops of tanning booths—generated the projects' central metaphor and aesthetic. At Electric Sun I and II, surreal light plays against a white-on-white landscape of opaque tanning booths on high-gloss floors—a rarefied gallerylike setting, punctuated occasionally by primary colors. In Electric Sun III [September 2001, p. 148], the exploration of luminosity goes further, with glowing, translucent tanning cabins that bear vivid imagery—a bold response to their mini-mall site.

For Jamie House—on a steep Pasadena, California, hillside—the architects once again took aesthetic and conceptual cues from the site and from technological or structural exigencies. The precipitous parcel on which they erected the house was long deemed unbuildable. They responded with a dramatically cantilevered box that hovers above the slope.

Besides projects from scratch, the firm has also taken on ambitious renovations and remodeling of such key Modernist structures as John Lautner's Chemosphere House in Los Angeles (a three-year endeavor completed in 2000) and a house by Richard Neutra (not yet underway).

Though Lautner's work does not share the Minimalist vocabulary of Escher GuneWardena's projects, Escher was drawn to it from his early days in Los Angeles in the late '80s. His interest eventually led him to edit a major Lautner monograph, and following the architect's death in 1994, he was appointed administrator of the Lautner Archive.

When asked to renovate the iconic 1960 Chemosphere House, Escher and GuneWardena confronted the perennial questions of how much to preserve and how much to change. Unrestricted by landmark legislation, they sought to analyze the building's intrinsic nature and edit out materials and features—even if original—that seemed to conflict with it. As it turned out, the perceived aberrances had often resulted from limitations in technology or budget at the time of construction. So the architects, for example, replaced conventional windows with frameless butt-jointed glass, eliminating small verticals to give a purer reading of structure and openings. The project won a preservation award from the Los Angeles Conservancy.

"You don't show respect by simply restoring a building to what it first looked like," maintains Escher. "It needs to change with time and use." With this project, as with the firm's own designs, the goal has been, adds GuneWardena, "to bring out the essence, to find what's significant." ■

Jamie House
Pasadena, California

Perched on a steep hillside, Jamie House rises on concrete towers, with two steel beams spanning 84 feet. The living, dining, outdoor deck, kitchen, and family areas (bottom right) form a continuous fluid space along the entire length of the building, providing spectacular, 180-degree views of the Pasadena cityscape. A simple bridge connects the ground plane, high up on the slope, with the entry—a gesture recalling Lautner's Chemosphere House (page 81).









Electric Sun I and II
Los Angeles

In two tanning salons—Electric Sun I of 1997 (below) and Electric Sun II of 2000 (right)—the architects took advantage of ultraviolet rays emanating from tanning booths. Similar to light sculpture, the luminous source generates atmospheric qualities through its changing patterns. As the sole decoration, the beams play against high-gloss floors and spare, cubelike furnishings. In contrast to typical tanning salons, the mood is serene and the space austere as an art gallery.





Sola Residence
Los Angeles

Scheduled for construction in 2002, the Sola Residence features three stacked, glass-ended boxes, ascending a Los Angeles hillside. Each volume sits with apparent lightness on a level formed by excavations and concrete retaining walls. On the inside, stairs and utility zones occupy smaller wooden volumes—positioned and shaped to manipulate horizontal movement and the discovery of views.



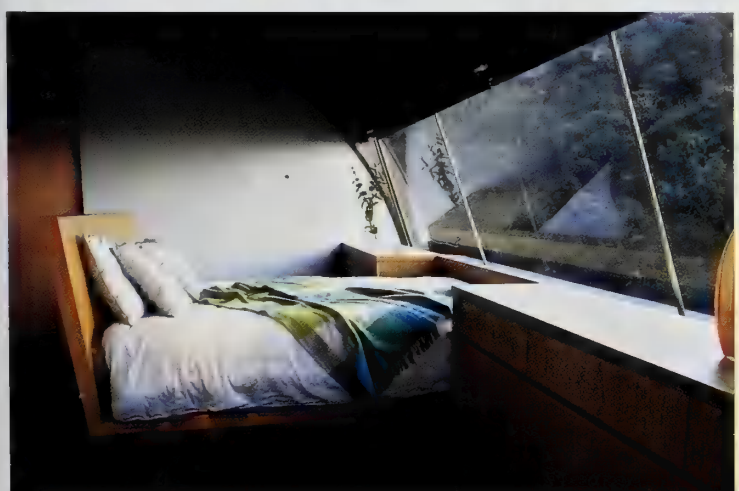


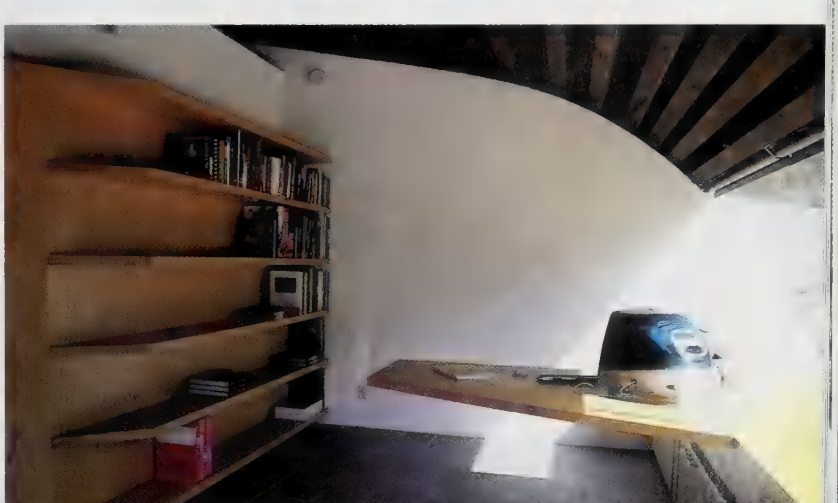
Chemosphere House
Renovation/Remodel
Los Angeles

For German publishers Angelika and Benedict Taschen, the architects extensively restored and remodeled John Lautner's iconic house. They replaced the living area's small, dirty-yellow floor tiles with jagged slate (below), akin to Lautner's original drawings. Reconsidering built-ins, they reconfigured a bedroom to allow for views from the bed (bottom left), and shaped a study in response to the house's overarching form. Phase II, the entry bridge and exterior, is in progress.











Studio Gang/O'Donnell finds its own niche, after working for OMA and SOM

By John E. Czarnecki, Assoc. AIA

Architect: Studio Gang/O'Donnell
Location: Chicago
Date founded: 1997
Design staff: 10
Partners (left to right): Kathleen O'Donnell, Mark Schendel, and Jeanne Gang
Education: Gang: Harvard GSD, M. Arch. 1993; University of Illinois, B.S., 1986; Schendel: Harvard GSD, M. Arch. II, 1988; Ohio State, M. Arch., 1986, B.S., 1983; O'Donnell: University of Illinois, Chicago, B. Arch., 1980
Work history: Gang: OMA/Rem Koolhaas, 1993–95; Booth/Hansen, 1995–96; Schendel: OMA/Rem Koolhaas, 1989–95; Cooper-Carry and Associates, 1996–97; DeStefano + Partners, 1997–98; O'Donnell: Harry Weese, 1978–79; Skidmore, Owings & Merrill (SOM) Chicago, 1980–89 and 1994–96; SOM London, 1989–94
Key completed projects: Belden loft interior, Chicago, 1997; Gethsemane Garden Center green house and master plan, Chicago, 1997; Collins house alterations, Chicago, 1998; Bellow House alterations, Chicago, 1998; Lake View High School pavilion structure, Chicago, 1998; Starlight Theatre, Rockford, Ill., 2000; Museum of Contemporary Art *Material Evidence* exhibition installation, Chicago, 2000; IIT open house exhibitions, 1997–2001
Key current projects: Two-family house, Chicago, 2002; Chicago Historical Society Collection Center, Chicago, 2002; Chinese American Service League Community Center, Chicago, 2003; TAG, Chicago, 2003; Rock Valley College Arts Instructional Center, Rockford, 2004; Art Institute of Chicago exhibition, Chicago, 2004

A century ago, Chicago was the center of architectural innovation as architects developed, to quote Louis Sullivan, "the tall office building, artistically considered." As years passed, many Chicago firms grew and became more corporate. These firms had the brawn needed to build the City of Big Shoulders, but their stranglehold on large projects made it a challenge for smaller firms to get work. Today, Chicago client perceptions of the appropriate architect for a building may be changing, and Studio Gang/O'Donnell may be one of the reasons.

A 10-person firm with a diverse range of projects, Studio Gang/O'Donnell has established itself as one of the most creative firms in the city. Partners Jeanne Gang, Mark Schendel, and Kathleen O'Donnell recognized that they could break into the Chicago market when they formed the practice in 1997. Gang and Schendel had recently returned to their midwestern roots after years practicing with OMA/Rem Koolhaas in Rotterdam, and O'Donnell joined them after working for SOM for 16 years. "We had a desire to build at a larger scale, and there just seemed to be more opportunities here in Chicago," says Gang.

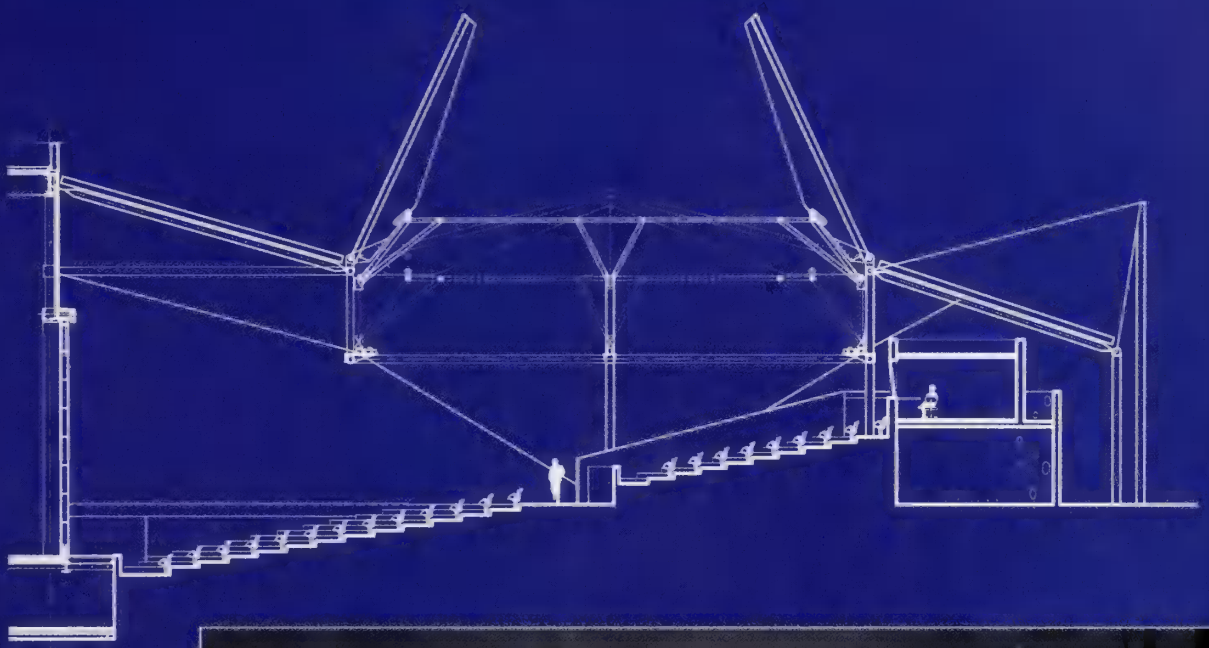
They found clients who were not getting enough attention from tried-and-true older, established firms, and they enlightened those clients that a large firm is not necessary to design a project like a theater. The firm currently has $50 million worth of work on the boards. "It's actually been easier than we initially thought to get bigger projects," says Gang.

Perhaps some of the clients were sold on the firm's lack of pretensions, as well as its design savvy. Having an office in a nondescript building adjacent to an auto repair shop on the North Side of Chicago seems appropriate—Studio Gang/O'Donnell is serious about its craft and about exploring materiality, experience of place, and movement through spaces. "There is a great urge on our part to create spaces that change over time," Schendel says. "We're completely unafraid to let our projects tell us about where the process will go. When we look at the design problem, we see everything we need."

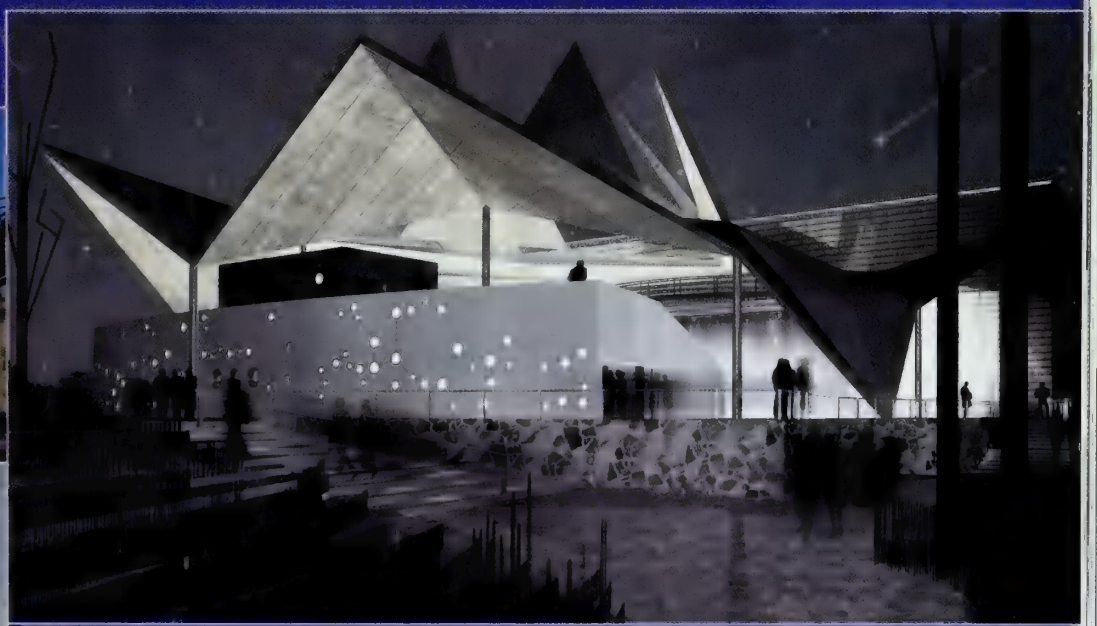
O'Donnell points to the firm's efforts to bring engineers and other collaborators into the design process, and to engage the client in that collaboration, as well. "We're not just bringing architecture products to the client," O'Donnell says.

For the outdoor Starlight Theatre (opposite) at Rock Valley College in Rockford, Illinois, Studio Gang/O'Donnell developed a roof structure of fin elements supporting faceted roof panels. This roof, combined with a concrete exterior wall with window openings that appear like constellations at night, heightens the experiential qualities of the structure. Lessons from the stars, as well as earthly objects, science, and theater itself informed the design of the facility. "We look at a lot of things outside of architecture for inspiration, not just formal design explorations," Schendel says. "We're constantly pulling in from the outside."

While the theater is a lively outdoor venue, the firm is currently designing a rather quiet civic space—the renovation of a building that will become the Chicago Historical Society Collection Center, including a research center, gallery, and auditorium. A space of permanence and time, perhaps this will mark Studio Gang/O'Donnell's Chicago moment. ■









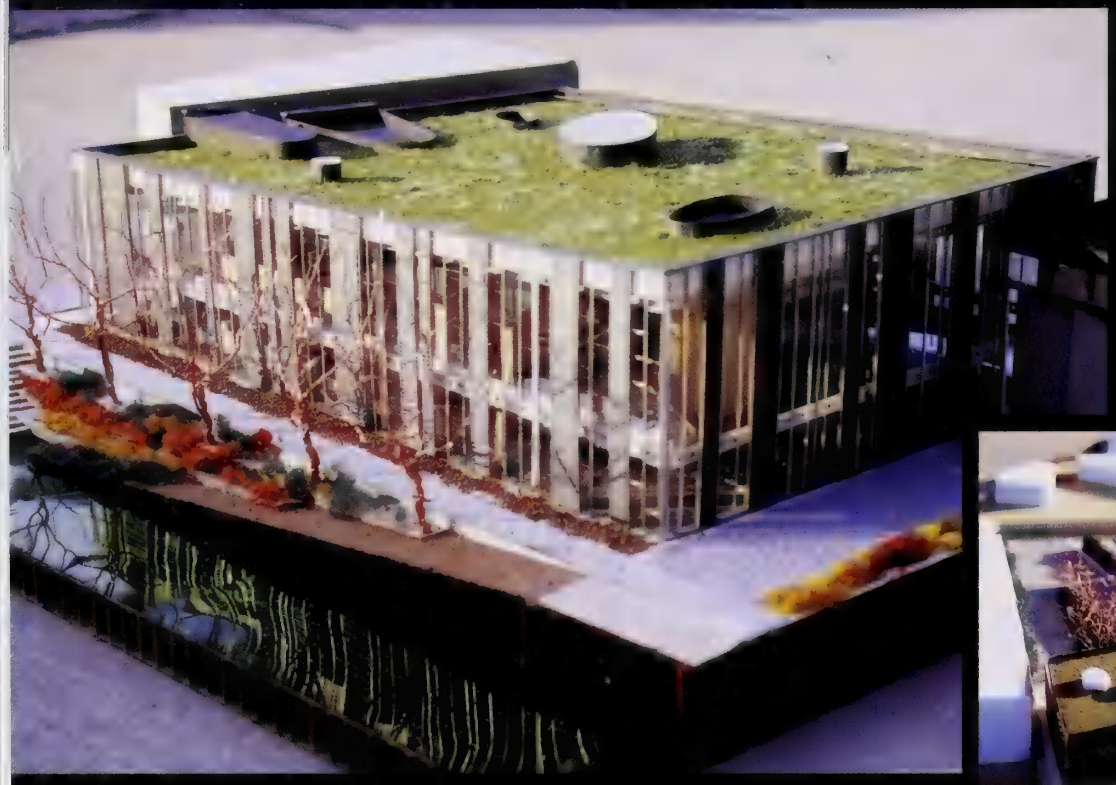
Starlight Theatre, Rock Valley College Rockford, Illinois

This outdoor theater includes seating for 1,200, a proscenium with a fully rigged fly tower, and a kinetic roof structure (above) that can be closed in inclement weather. The exterior wall of the theater is punctuated by voids that look like constellations (below left) at night. The interior toilet rooms (middle left), which could have been mundane, show some verve, with exposed concrete and random window openings for sunlight.

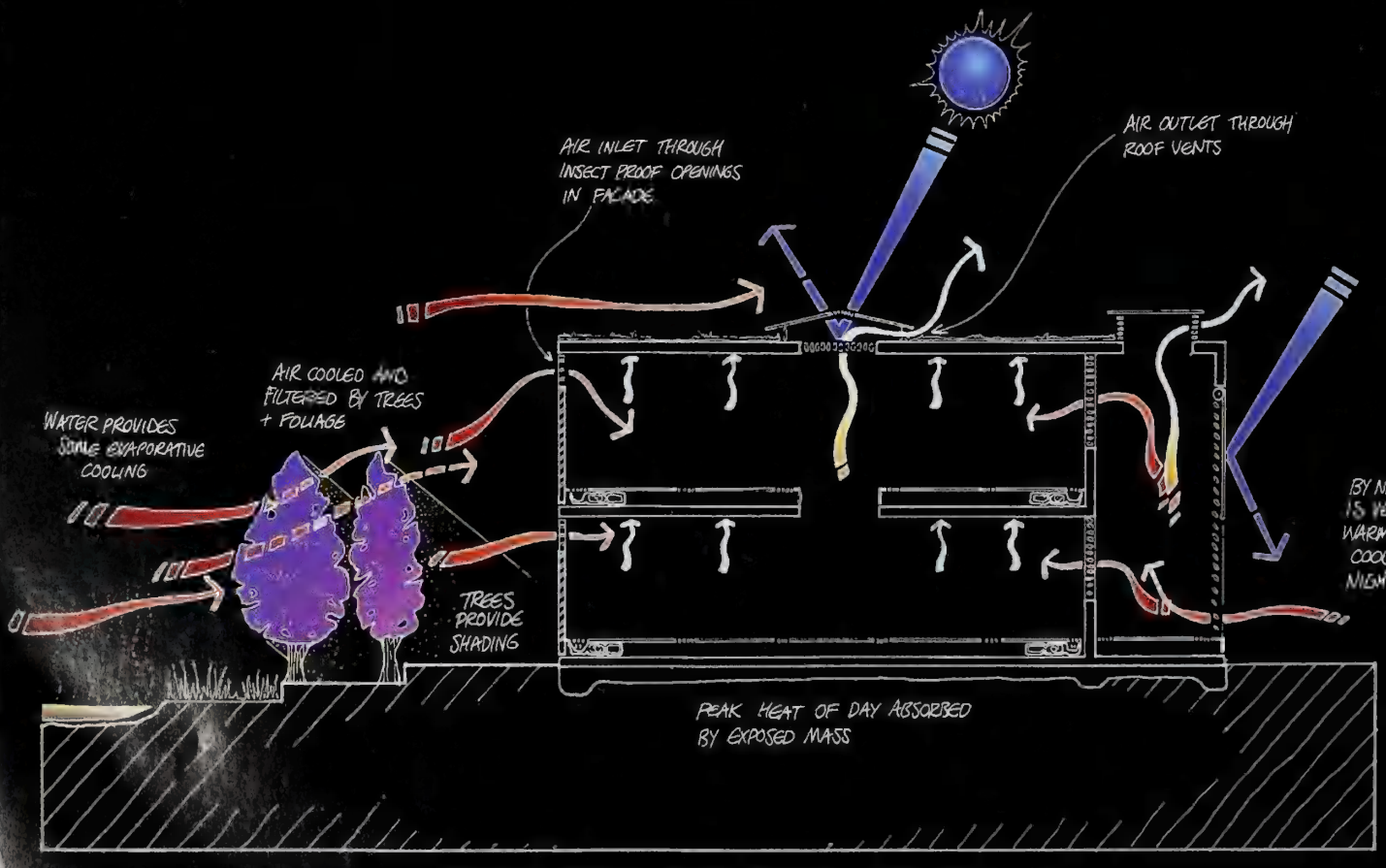


TAG warehouse
Chicago

This warehouse (below) and an office building (left) are intended for a Chicago company that places bar codes on items for distribution. Studio Gang/O'Donnell designed the office facade of concrete panels and glazing to imitate the seemingly random interplay of voids of a bar code. Adjacent to the Chicago River, the warehouse is designed to take in cool air off the river and vent it through the roof (bottom). Green roofs would also help the long, low spaces of the warehouse and office stay cooler.







MIDSEASON OPERATION NATURAL VENTILATION + NIGHT TIME COOLING

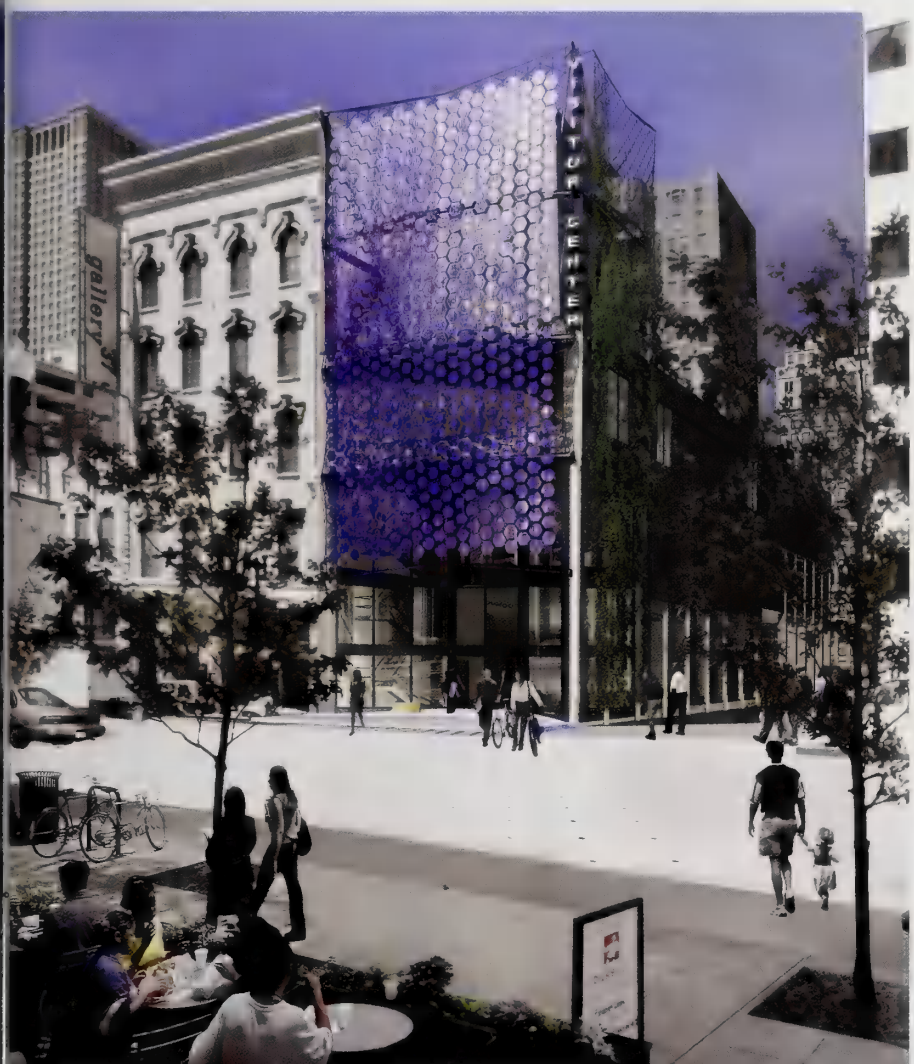
IIT Crown Hall instrument and suspended exhibit Chicago



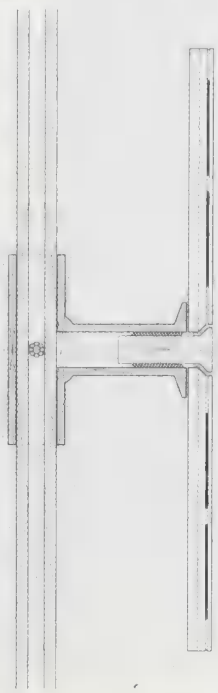
For last spring's open house at IIT, Studio Gang/O'Donnell reinterpreted Mies van der Rohe's Crown Hall as a musical instrument. The building was strung with 28,000 linear feet of brass wire that can be vibrated to make sounds and used to hang student work (right). The group Mass Ensemble (left) composed and performed the site-specific "Mies Piece." This installation won an AIA Chicago Divine Detail Award.



Windy City Sequins—Chicago Visitor Center Chicago



In its competition entry for the Chicago Visitor Center facade in downtown Chicago, Studio Gang/O'Donnell implemented a curtain of hexagonal photovoltaic cells that visualizes movement and saves energy. The "solar sequin" (plan, below) would be a laminated glass photovoltaic module hung on a lightweight cable net. The sequins would yield 48,000 kilowatts of energy per year. Studio Gang/O'Donnell worked with Battle McCarthy UK on wind and energy studies for the project.





Oman and Videcnik use design to make connections both physical and cultural

By Clifford A. Pearson

Architect: Ofis Architects
Location: Ljubljana, Slovenia
Date founded: 1995
Design staff: 7
Partners: Rok Oman and Spela Videcnik
Education: Oman: Faculty of Architecture in Ljubljana, 1998; Architectural Association, London, 2000; Videcnik: Faculty of Architecture in Ljubljana, 1997; Architectural Association, London, 2000
Key completed projects: Housing blocks, Koseze, Slovenia; Complete My Sentence video performance
Key current projects: Villa extension, Bled, Slovenia, 2002; City Museum, Ljubljana, 2003; sports stadium, Maribor, Slovenia, 2004; Europan 6 housing, Graz, Austria, 2004
Web site: www.ofis-a.si



Ofis has designed sets for theater pieces like *Paracelsus & Frankenstein*.

With one foot in London and the other in Ljubljana, the Slovenian team of Rok Oman and Spela Videcnik represents the new face of Europe—looking east but still connected to old centers of power. Multilingual and fluent in the ways of the media, the firm is busy pursuing an architecture of integration—one that weaves together old and new, building and landscape, indoors and out. Rather than smoothing over differences, though, their projects use contrast and juxtaposition as design strategies for reconciliation.

Even before they began their master's programs at the Architectural Association in London in 1999, Oman and Videcnik—who call their firm Ofis Architects—had won important competitions in Slovenia: to design a trio of apartment blocks in Koseze, the City Museum in Ljubljana (with architect Lidija Dragisic), and a sports stadium in Maribor (with Ales Znidarsic and Katja Zlajpah). Competitions continue to be good to Ofis, with the firm's radical scheme for a housing project in Graz, Austria, taking first place in the Europan 6 contest this summer. Best of all, Oman and Videcnik are turning competition victories into built work. Their apartment blocks in Koseze opened earlier this year and the City Museum—which involves renovating and adding to a historic palace—is under construction. The stadium in Maribor also is moving forward, with construction scheduled to start in 2003.

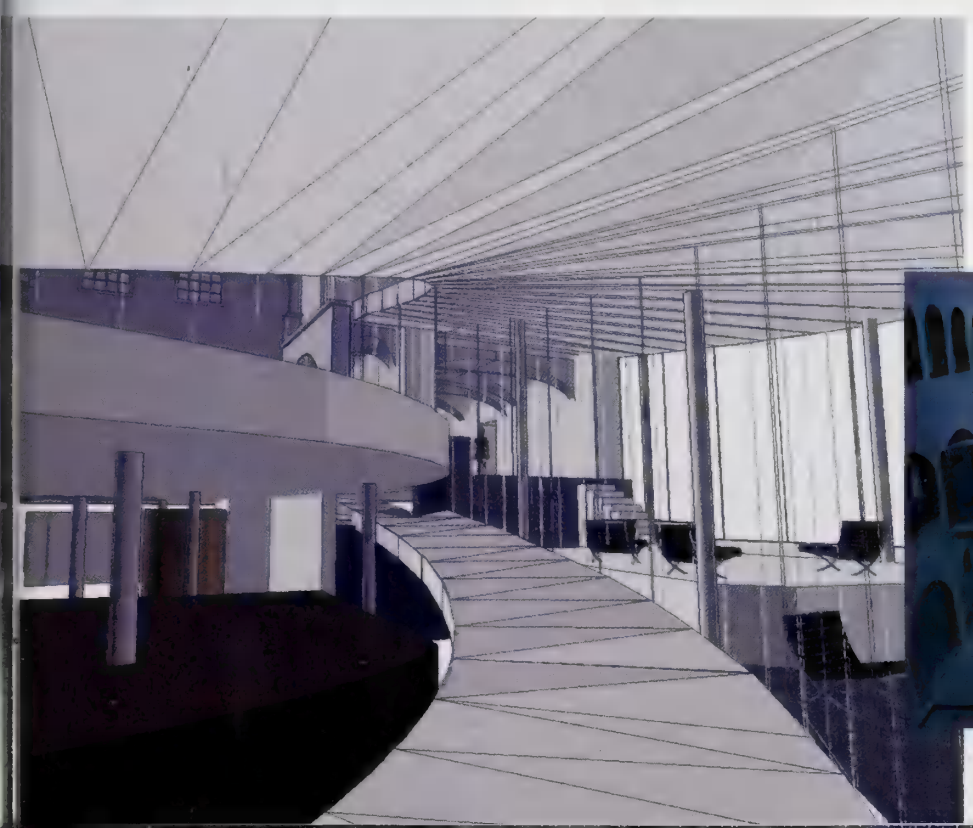
Though still in their early 30s, Oman and Videcnik know their modern architectural history and say they "keep books on Le Corbusier's work open all the time." The sensuous curves and dramatic ramps of their City Museum project, for example, recall late Corbu, as does their use of circulation spaces to drive the building's form. At the same time, the firm looks to Rem Koolhaas—not so much for his formal invention, but for the process he employs in developing a project. "We're doing a lot more research on our projects," examining issues of context, history, structures, and forms, says Videcnik. While Koolhaas can muster teams of students and colleagues to analyze phenomena such as shopping and travel, Oman and Videcnik try to apply his big-picture approach to design on a smaller budget. Their proposal for a cineplex in Maribor, for example, rethinks entertainment complexes, opening the building to its surroundings with outdoor spaces and views across the city's river. "We wanted to integrate the building with the landscape and perforate its skin to expose as many of its functions as possible to people on the street," explains Videcnik.

Just as their City Museum uses modern forms and materials to develop a seamless narrative for the history of Slovenia's capital, Oman and Videcnik's design for an extension to a villa in the town of Bled and their Europan 6 housing scheme in Graz create a sense of continuity between structure and landscape. In these projects, roofs function as green outdoor rooms and living spaces nestle in the land. The architects are also happy to mix it up with other artists, collaborating with directors, writers, choreographers, and lighting designers on theatrical pieces, even envisioning a lighting showroom as part architecture, part performance art.

The firm's home base may be Ljubljana, but Videcnik teaches in England and operates a "mobile" office from there. With their sights set on a broad European practice, these architects are on the move. ■

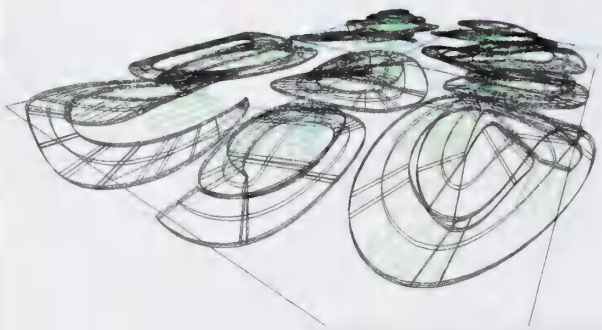
City Museum
Ljubljana, Slovenia

Set in Ljubljana's medieval center, the museum occupies a palace with a complex history of Gothic and Neoclassical construction. Oman and Videcnik's design transforms old labyrinthine interiors into a bold new cultural center that points to the city's future as well as its past. A spiraling, glass-enclosed addition connects the various levels and incorporates archaeological remnants found on the site. Completion in 2003.

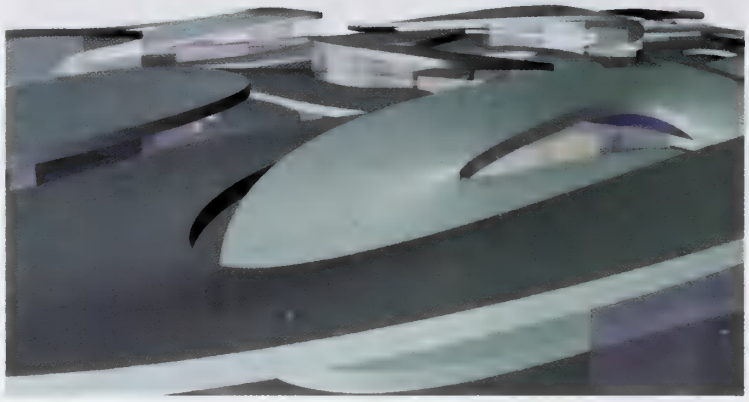




Europan 6 Housing
Graz, Austria



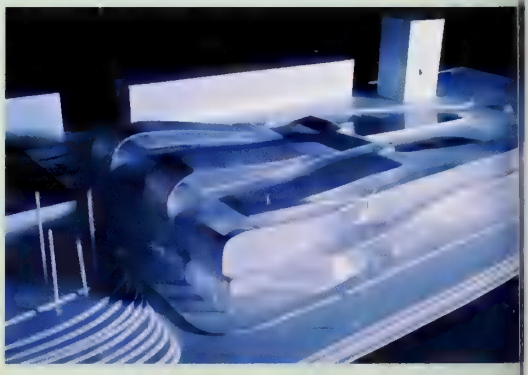
This competition-winning scheme for a suburban site in Graz integrates building and landscape. The design clusters four to seven live/work units in "mounds" that combine shared and private spaces. The mounds will be poured-concrete structures with "green" roofs that will form a connected parklike surface where people can relax and enjoy the outdoors. An initial phase of the project calls for building 76 units.





Cineplex
Maribor, Slovenia

Although they didn't win the job, Oman and Videcnik feel this project is an important one for them—allowing them to explore ways of engaging a large entertainment complex with its urban setting. Because the roof would be visible from across the city's river, the architects treated it as a "fifth facade" and made the river elevation as transparent as possible. The fluid form helps reduce the apparent size of the project.

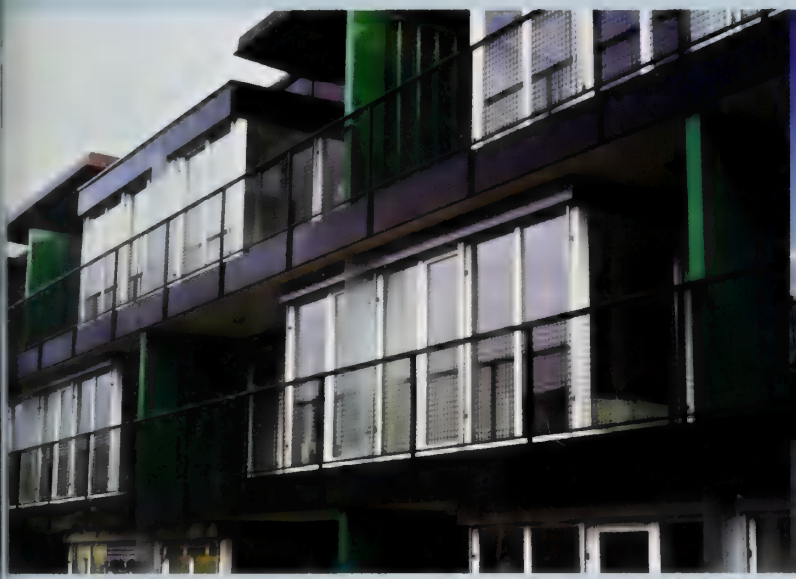


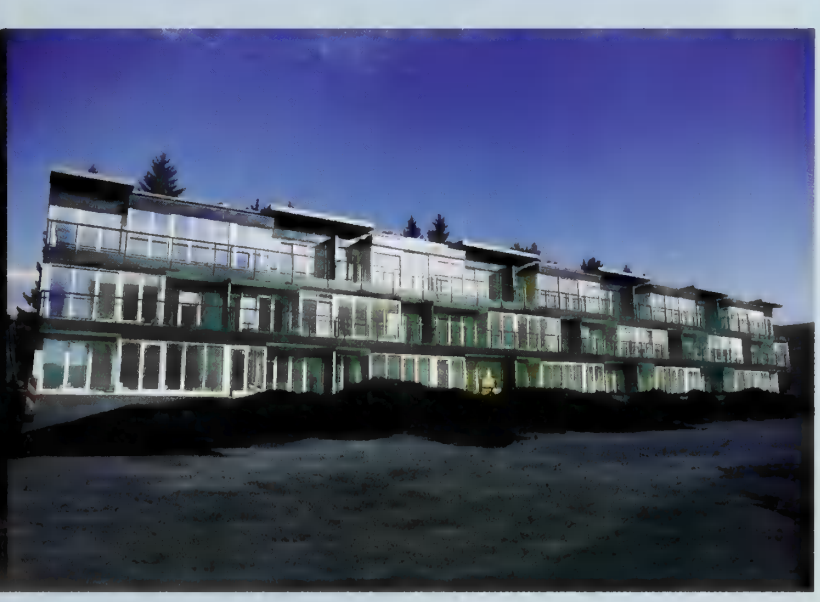




Apartment Blocks
Koseze, Slovenia

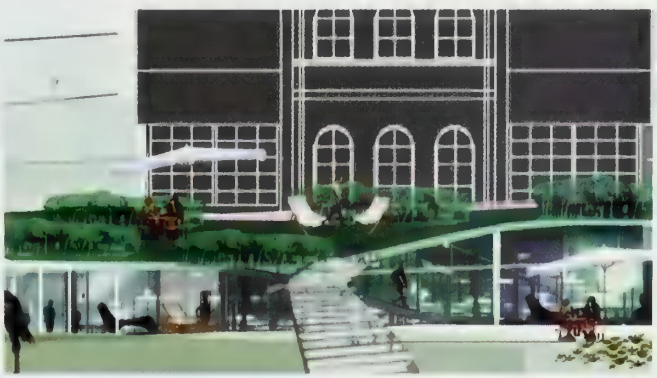
Completed earlier this year, this privately developed project just outside of Ljubljana comprises three blocks of apartments. Each building has 36 one-story apartments, ranging in size from about 400 to 1,400 square feet. The architects say they took advantage of views of a nearby lake by orienting units to the water and alternating glazed loggia with covered balconies. Underground parking lets much of the site remain open and keeps cars out of the way.

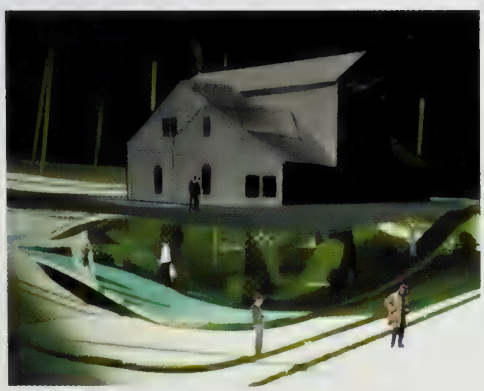


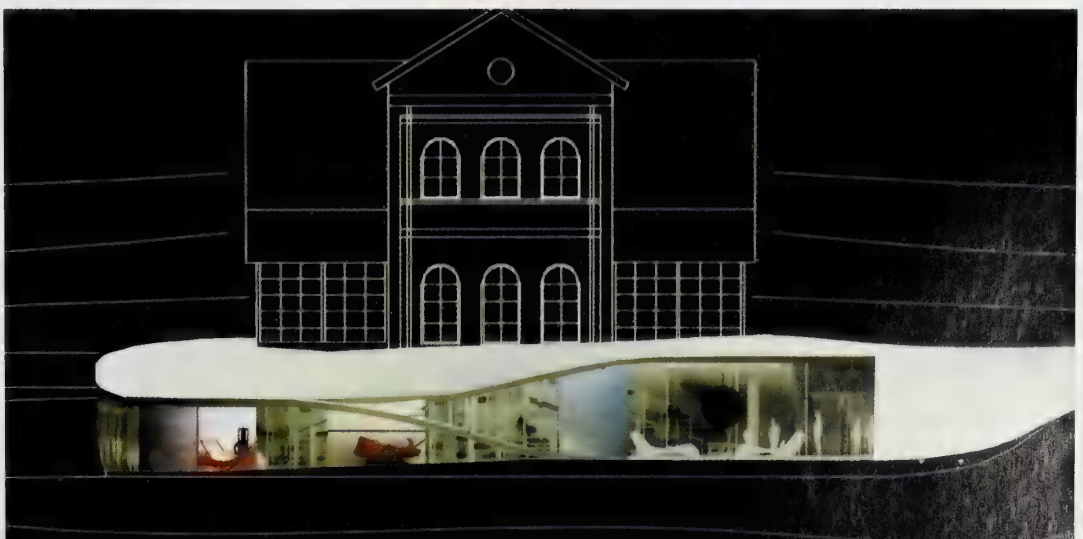


Villa Extension
Bled, Slovenia

Asked to design an addition to a nineteenth-century villa, the architects envisioned a swirling glass plenum that establishes an artificial landscape around the old building. A spiraling ramp accommodates the owner's extensive library, and generous glazing offers views to a nearby lake. The project, which includes a total renovation of the villa's existing interiors, began construction this year and should be completed next summer.







PHOTOGRAPHY COURTESY OF US



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UNIVERSITIES

Cohesive Campuses

THREE APPROACHES TO DESIGNING AN INTEGRATED CAMPUS ADDRESS DIFFERENT CLIMATES, CULTURES, AND CONTEXTS.



1.

Singapore

Nanyang Polytechnical Institute by Gwathmey Siegel demonstrates the rigorous cohesion of a large campus designed by one firm.



2.

Philadelphia

Venturi Scott Brown and Associates make planning, preservation, and architecture a seamless effort at the University of Pennsylvania's Perelman Quad.



3.

Monterrey, Mexico

At the EGADE graduate school of business by Legorreta + Legorreta, a spiraling concrete form provides a singular campus for 500 students.

By Suzanne Stephens

College campuses have long been afflicted with a case of architectural *polyglotitis* as buildings in various styles are added over the years. With a growth rate in the past decade much like the 1960s, campus planners have to deal with fitting new buildings into a jumble of historical styles. Indeed, a record $14.7 billion was spent during the year 2000, according to *American School and University*'s 27th annual Official Education Construction Report. While the economic forecast since September 11 has been particularly bleak, Martin Van Der Werf, senior editor of *The Chronicle for Higher Education*, says it is still too soon to tell how much college construction will be affected.

What is good for architects—such as more construction—may not be so good for college campuses, particularly if rapid expansion leads to a loss of sense of place. One way of solving the problem is by having design-oriented architectural firms undertake comprehensive master plans with an eye to the physical end results, as much as to traffic, pedestrian circulation, and land-use planning. For example, Venturi Scott Brown and Associates (VSBA) has executed master plans at the University of Michigan, a plan for Dartmouth's north campus, and is currently undertaking the master plans or related components at Williams College and at Radcliffe Institute (formerly Radcliffe College) at Harvard. For the University of Pennsylvania, as part of an entire land-use plan, VSBA brought life back to an historic locus, now called Perelman Quad, through planning, programming, restoration, and design.

Starting from scratch is a more direct, albeit sometimes perilous, way of guaranteeing a cohesive campus. With EGADE, a graduate business school in Monterrey, Mexico, Ricardo and Victor Legorreta chose to give the new campus its unity by designing a large, single spiral concrete form to house the various functions. While the idea of conceiving a campus as one building harks back to the 1960s megastructure, Legorreta + Legorreta's version mitigates possible monotony and blandness through the use of an intense color palette and well-scaled, contoured forms.

Gwathmey Siegel's Nanyang Polytechnic in Singapore also follows the megastructure concept. To offset the blandness inherent in a 2½-million-square-foot concrete campus, the architects took advantage of the tropical climate. Lush planting and landscaped spaces are woven throughout the rectangular site and clustered geometric forms.

The only problem with the new megastructures is that they can't benefit from the rich architectural vocabulary found on campuses that have evolved over time. Sometimes a touch of the polyglot is good. ■

For 10 more university projects go to Building Types Study at **www.architecturalrecord.com**. The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

Nanyang Polytechnic
Singapore

1

GWATHMEY SIEGEL AND DP ARCHITECTS TAKE ADVANTAGE OF A TROPICAL CLIMATE TO CREATE A GARDEN CAMPUS WHERE ARCHITECTURE AND LANDSCAPE WORK TOGETHER.

By Clifford A. Pearson

Architect: *Gwathmey Siegel & Associates—Robert Siegel, FAIA, Charles Gwathmey, FAIA, partners; Joe Ruocco, associate in charge; Frank Visconti, project architect; Nelson Benavides, Peter Brooks, Greg Epstein, Mark Hill, Lance Hosey, Joseph Hsu, John Hunter, Jay Lampros, Richard Lanier, George Liaropoulos, Wei-Li Liu, Greg Luhan, Cheryl McQueen, Christine Straw, Frank Thaler, project team*
Associate architect: *DP Architects—Gan Eng Oon, Wu Tzu Chiang, Lesley Lim, Francis Lee, Jeremy Tan, project team*
Engineers: *TY Lin (structural); Rankine & Hill (mechanical)*
Landscape architect: *Clouston*
General contractor: *JDC & Kim Seng Heng JV*

Size: *75 acres, 2.5 million square feet*
Completion date: *Late 1999*

Sources
Curtain wall: *Flamelit*
Aluminum windows: *Yodac Window System; Kum Leng Aluminum*
Glazing: *Glascon Glazing*
Skylights: *Pacific GoldHill; Prime Structures*
Interior ambient lighting: *Zumtobel and Dinmex*

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Imagine Thomas Jefferson in the tropics. Or, more specifically, the University of Virginia two degrees north of the equator: a community of learning with a rotunda at its center and lawns defined by repetitive buildings. That's what Gwathmey Siegel & Associates tried to do when designing Nanyang Polytechnic, a start-from-scratch campus in the north-central suburbs of Singapore. There are differences, of course—painted stucco instead of Virginian brick, a modernist vocabulary instead of Jeffersonian classicism, and an initial phase in scale with the ambitions of a rising international trading power rather than those of an 18th century state most proud of its gentlemen farmers.

Context

Nanyang is the latest in a series of large polytechnical schools that Singapore is constructing to develop technicians and middle-level managers for the twenty-first century. Like Temasek Polytechnic, designed by James Stirling and Michael Wilford [RECORD, May 1997, page 102], Nanyang offers an alternative to a university education, directing students to specialized fields of study. At Nanyang, the specialties—engineering, health sciences, information technologies, and business management—function as individual schools sharing a 75-acre campus. With nearly 12,000 students and 2.5 million square feet of space, Nanyang presented the formidable challenge of making a giant institution both easy to navigate and friendly in scale.



Solution

Working with DP Architects (the Singapore firm that also collaborated with Stirling Wilford at Temasek), Gwathmey Siegel devised a campus plan that connects buildings with covered walkways and cloisters (as Jefferson did with his Great Lawn). A central pedestrian spine runs north–south, with buildings for the four schools on either side and cars moving along a loop road around the perimeter of the campus. Although each school has surface parking adjacent to its buildings, most students commute to school by bus or monorail.

At the heart of the plan stands the 550,000-square-foot Campus Center—a great oblong structure housing administrative offices, a library, and other shared facilities. With the main vehicular drop-off and monorail stop in front of the building and the most imposing shared spaces inside it, the Campus Center is Nanyang's literal and symbolic hub. "The original idea was to cover the courtyard at the center of the building with a fabric roof," says Robert Siegel, FAIA. Although the roof wasn't built, it could be added later, says Siegel. "But the building and courtyard work so well right now, I doubt the client will ever add the roof."

Because it is at the center of campus, the hub is no more than a five-minute walk from anywhere

ERHARD PFEIFFER (TOP)

The main entrance (right) introduces key elements used throughout the campus: water, greenery, and poured concrete. The south quad (bottom and opposite) orients classroom buildings around a large water feature.









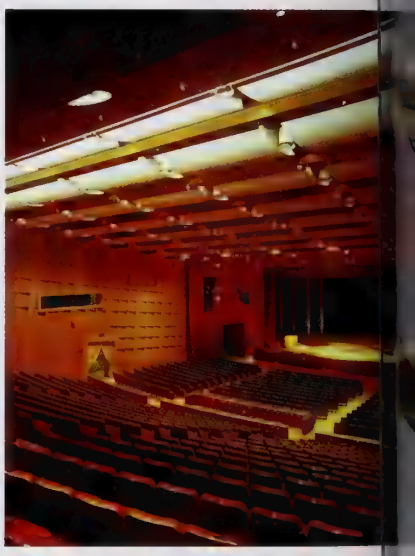
1. *Sports hall*
2. *Child care/faculty club*
3. *Canteen*
4. *Health sciences*
5. *Business school*
6. *Campus Center*
7. *Engineering*
8. *Information technologies*
9. *Staff housing*

Designed for 12,000 students, Nanyang Polytechnic has room to grow by about 25 percent. Taking into consideration Singapore's location just north of the equator, the architects oriented classrooms to the north and south, where the angle of the sun does not vary much. Services such as rest rooms and elevators occupy the east and west ends of classroom buildings to block the sun in the morning and afternoon. The designers used trees to shade surface parking areas adjacent to each of the four schools and the 1,200-seat auditorium. Covered walkways and stairways provide protection against rain and sun while eliminating the need to enclose and air-condition such circulation areas.

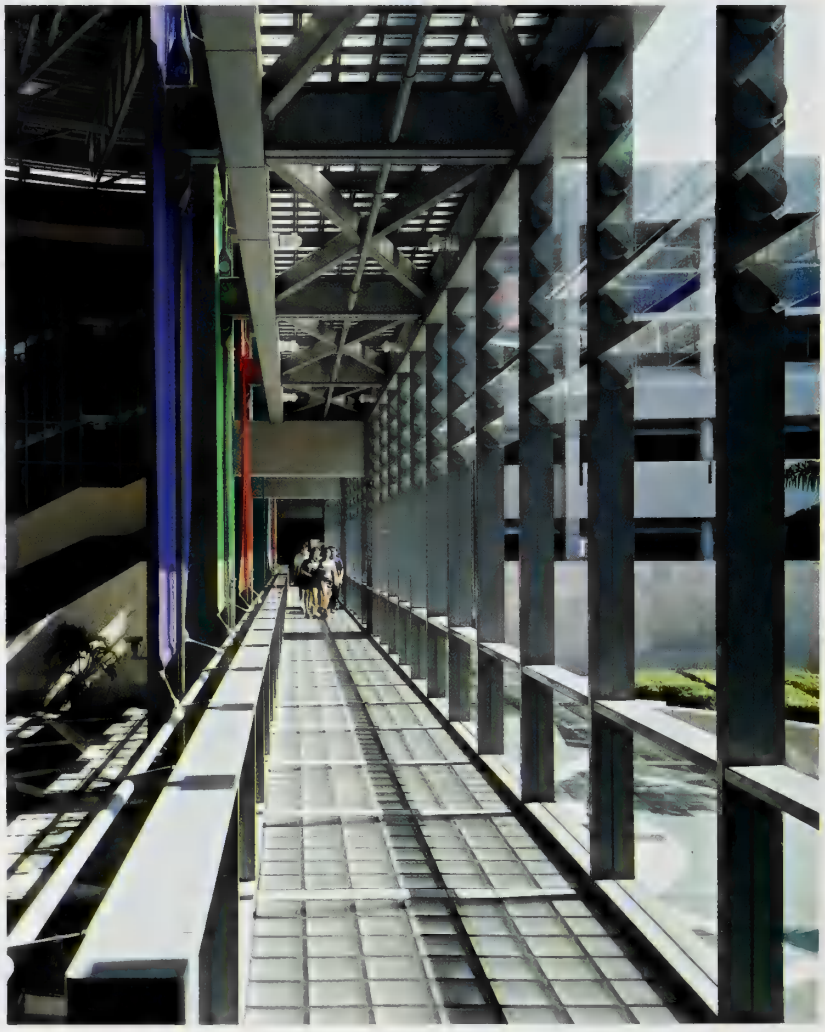








The six-story Campus Center building (above, opposite, and right) serves a variety of functions—from receiving and orienting visitors to housing administrative offices and a 140,000-square-foot library. While vehicles arrive on the main level, pedestrians enter the campus one level below and take escalators or stairs up. A 1,200-seat auditorium (far right) is located right off the Campus Center.



else. "What drove everything was the need to make this an easily understandable campus," says Siegel. "We wanted it to be a great place to walk." The architects took advantage of the tropical climate to weave gardens and water throughout the campus. "The idea was to take Singapore's image as a garden city and apply it to our scheme."

The architects also took advantage of a sloping site to create outdoor spaces on three different levels with the parklike main axis running along the middle level. "We wanted to offer a variety of outdoor spaces, so we alternated large gardens with more cloistered courtyards between the classroom buildings," explains Siegel.

All of the buildings are poured-concrete structures with precast brise-soleils. Exterior finishes include painted stucco and ceramic tile. The massing, profiles, and subelements of the buildings vary, to create individual identities, but all share a common vocabulary.

Commentary

As with any campus designed by one group of architects at one time, Nanyang suffers from a sameness in form and articulation. Yet the variety of outdoor spaces and the buildings' close relationship between indoors and out create an attractive place. It may lack the University of Virginia's intimacy in scale and detail, but Nanyang draws strength from a clear plan and rich landscaping. ■



The atrium of the main campus library is a "signature" space that establishes a strong image for the sprawling institution. The library is one of the main tenants of the Campus Center building.

Perelman Quadrangle
University of Pennsylvania

2 **VENTURI SCOTT BROWN AND ASSOCIATES REINFORCE A STUDENT PRECINCT THROUGH A CAREFUL WEAVING OF PLANNING, RENOVATION, AND DESIGN.**

By Suzanne Stephens

Architect: *Venturi Scott Brown and Associates—Denise Scott Brown, Robert Venturi, principals; John Hunter, project manager; Rich Stokes, Jon Wagner, Aaron Young, Susan Lockwood, project architects*
Client: *University of Pennsylvania*
Consultants: *Keast and Hood (structural); Marvin Waxman (mechanical); Steven J. Lit (electrical); Andropogon Associates (landscaping); Grenald Waldron Associates (lighting); George Izenour & Associates (acoustical); Urban Engineers (civil)*
Size: *323,000 gross square feet*
Cost: *$87,000,000*
Completion date: *2000*

Sources
Windows (leaded lights): *Winslow Stained Glass*
Glass: *Graboyes (Irvine Auditorium); McKeon*
Acoustical ceilings: *Armstrong (mineral fiber); Alpro Acoustics (perforated metal) Wallcore Technology (acoustical panel)*
Paints and stains: *Jack Smith; Benjamin Moore*
Plastic laminate: *Formica*
Carpet: *Durkan, Karastan Bigelow; Shaw/Stratton*

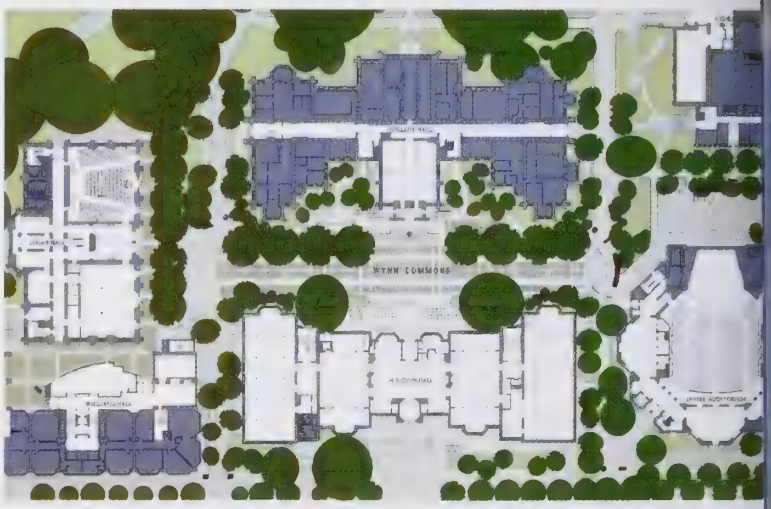
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For additional universities and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

As colleges and universities expand, too often they lose their sense of cohesion. Such a blurring occurred at the University of Pennsylvania in west Philadelphia, where a core of historic buildings, including a student union, had gradually been drained of its role as the campus center. To bring vitality back to this ensemble, Venturi Scott Brown and Associates developed a strategy as part of the master-planning efforts they were undertaking for the university. Now called Perelman Quadrangle, after financier and alumnus Ronald Perelman, the group of buildings and open spaces demonstrates the critical relationship of architecture and design with planning, programming, and restoration.

Context

The oldest structures on the west Philadelphia campus, College Hall (1873) and Logan Hall (1874), are mansard-roofed, Victorian Gothic buildings designed by Thomas Richards, a professor on the faculty. His long-ago choice of a green Chester serpentine stone for the upper floors and granite for the base caused critic Montgomery Schuyler [RECORD, September 1910] to lament the addition of "bizarre contrasts of color to that which had already a rather restless animation." But that was then.

On the opposite long side of the quad is the student union, housed in the Collegiate Gothic–style Houston Hall. Designed by two architecture students, William Hays and Milton Medary, it was executed under the aegis of Frank Miles Day in 1896 in a Pennsylvania schist, with two large end bays added in 1936. Looming above Houston and Logan halls is the clunky Brutalist, brick Williams Hall, designed by Nolen Swinburne and Associates in 1972, while down at the lower east end of the quad rises the stalwart Moorish-style Irvine Hall designed by Horace Trumbauer in 1932.



Solution

In VSBA's master-planning studies undertaken between 1989 and 1992, Denise Scott Brown identified, among other things, paths of pedestrian movement through and around these buildings. VSBA decided that Houston Hall, while needing to be the main student center, shouldn't be the only building with cafés, lounges, and other meeting areas. Hence these activities were threaded through the lower floors of most of the buildings around the quad. Although VSBA was not in charge of renovating the exteriors of College and Logan halls (that was assigned to Marianna Thomas Architects), its plan called for the entrance from the admissions office in College Hall to open once again onto the Commons. In addition, the firm renovated the lower floors of Logan into a series of multipurpose spaces, leaving the floors above for arts and science classrooms. Williams Hall, a language classroom building, received "conservative surgery," according to Scott Brown, including a single-story, glazed café and study room (Silfen Study Center) that juts out from the building at ground level to attract students at all hours.

The major student center, the traditional, clubby-looking, wainscoted Houston Hall, was restored

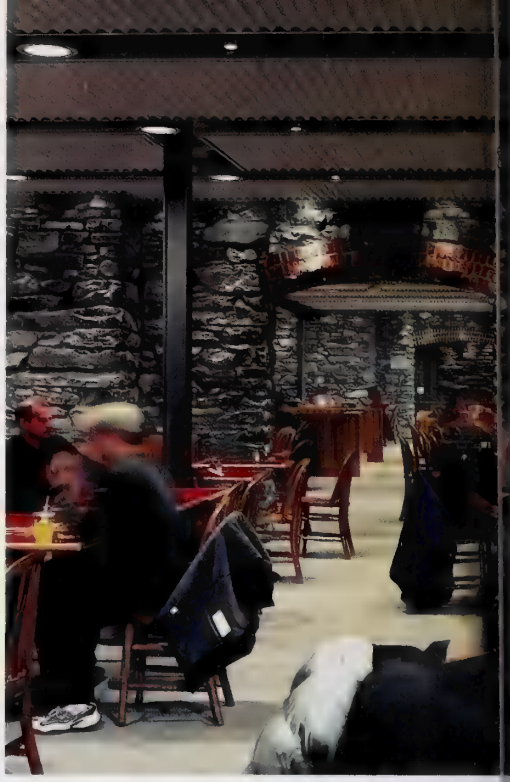




The "ontogeny of Perelman," in Denise Scott Brown's words, emanates from a combined land-use pattern and circulation that is carried through the various floors of the buildings.



In Houston Hall, a 40-foot-high room (left) is used for dining and other functions. Additional dining space has been inserted in the basement, with areas defined by the original stone walls and steel columns. A new study center and café juts out from Williams Hall (below).





and renovated for study areas and cafés. The lighting and the furniture, including the design of a central information desk, all reflect the firm's penchant for the jazziness of pop culture, melded with the traditional formality of yesteryear. Houston's basement, which had been used for mechanical systems, storage, and some food service, was cleaned out, with the mechanical rooms and related services moved underneath the outdoor plaza. That left an ample 20,000 square feet for various dining areas subdivided by existing fieldstone walls and steel columns.

In restoring and renovating the steel and concrete Irvine Auditorium, VSBA removed balconies on either side of what had become a 1,250-seat auditorium, making room for a café and a 125-seat recital hall. The most compelling aspect of Irvine Auditorium is, without doubt, the painted polychromed interior, restored to the original color scheme added at the end of the building's construction. (In its palette and pattern, the paint job alone would make it seem that Venturi Scott Brown had been predestined to refurbish this hall.)

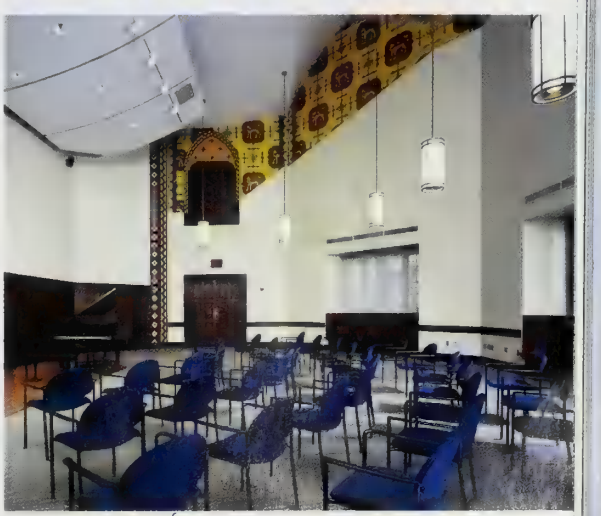
Outdoors, the center stage of Perelman Quad is occupied by Wynn Commons, a rectangular plaza named after Vegas casinomeister and alumnus Steven Wynn. Here, a small amphitheater in front of Logan Hall and a speakers platform with the Penn crest at the Irvine end help enclose the space, while seating is provided by low granite retaining walls.

Commentary

Considering the scope of this effort, it is unfortunate that VSBA did not do the interiors of College Hall. The absence of telltale VSBA motifs, colors, and detailing in the college admissions area is all the more noticeable after visiting the rest of the enclave. Inside and out, the firm's brash design elements act as signs of its planning and preservation strategies. The result is a place that can attract students while still respecting Penn's historic legacy. ■







In the Moorish-style Irvine Auditorium, designed by Horace Trumbauer in 1932 (left), side balconies were removed for a new 125-seat recital hall (right) and a café. An acoustical glass-reinforced-gypsum canopy over the stage (top) and panels along the sides of the 1,250-seat auditorium are detailed in VSBA's variation of Czech Deco.

EGADE
Monterrey, Mexico

3

LEGORRETA + LEGORRETA DESIGNS A SPIRALING BUSINESS SCHOOL ATOP A PARKING STRUCTURE, CREATING A COMPACT SYMBOLIC FORM FOR AN ARID URBAN LANDSCAPE.

By Elizabeth Kubany

Architect: *Legorreta + Legorreta—Ricardo Legorreta and Victor Legorreta, principals; Noé Castro, Miguel Almaraz, Adriana Ciklik, Victor Figueroa, design team*
Client: *ITESM—Monterrey Institute of Technology for Superior Studies*
Consultants: *Dr. Francisco Yeomans, Department of Engineering, ITESM (structural); Tecnos Ingenieria and Enrique Garay (electrical and mechanical); Harari Arquitectura y Paisaje (landscape); Tecnos Ingenieria (lighting); Multisistemas BVC*
Size: *86,111 square feet (school); 258,334 square feet (parking)*
Cost: *$15 million*
Completion date: *May 2001*

Sources
Concrete: *CEMEX*
Glass curtain wall: *Grupo Vitra*
Precast colored-concrete panels: *PRESCO Productos Especiales de Concreto*
Carpeting: *Lees Carpets*
Metal ceiling systems: *Luxalon, Hunter Douglas*

www
For additional universities and more information on the people and products involved in this project, go to Building Types Study at **www.architecturalrecord.com**

"We needed a landmark," says Victor Legorreta, who, with his father, Ricardo, designed a spiral form for the Monterrey campus of Mexico's premier business school. The problem, Legorreta explains, was that the location lacked a strong architectural identity. Factories and other manufacturing buildings are typical of Monterrey, the capital of the industrial state of Nuevo León. As Mexico's third largest city, it is at the center of the country's technological and business communities. About 528 miles north of Mexico City, it is situated in a desert near the Sierra Madre mountains.

Program

EGADE (the Spanish abbreviation for the Graduate School of Business Administration and Leadership) is part of the prominent Instituto Tecnologico y de Estudios Superiores de Monterrey, known as "El Tec," which has 26 campuses in 25 cities for its graduate and undergraduate programs. This newest campus is on a 4-acre site apart from the existing Monterrey campus and directly adjacent to a large, verdant park.

According to Victor Legorreta, El Tec places heavy emphasis on technology. For instance, the school is an international leader in using satellite technology to beam in lectures from experts around the world. As a result, the school wanted a building that would foster interaction among the 500 students and faculty as a way to counter the isolating, impersonal effects of virtual learning. In addition, because the EGADE project is the first building on the campus—and the first phase of a long-range master plan (also designed by Legorreta + Legorreta) that calls for a convention center, corporate offices, retail, restaurants, and a hotel—the school wanted it to make a grand symbolic statement.



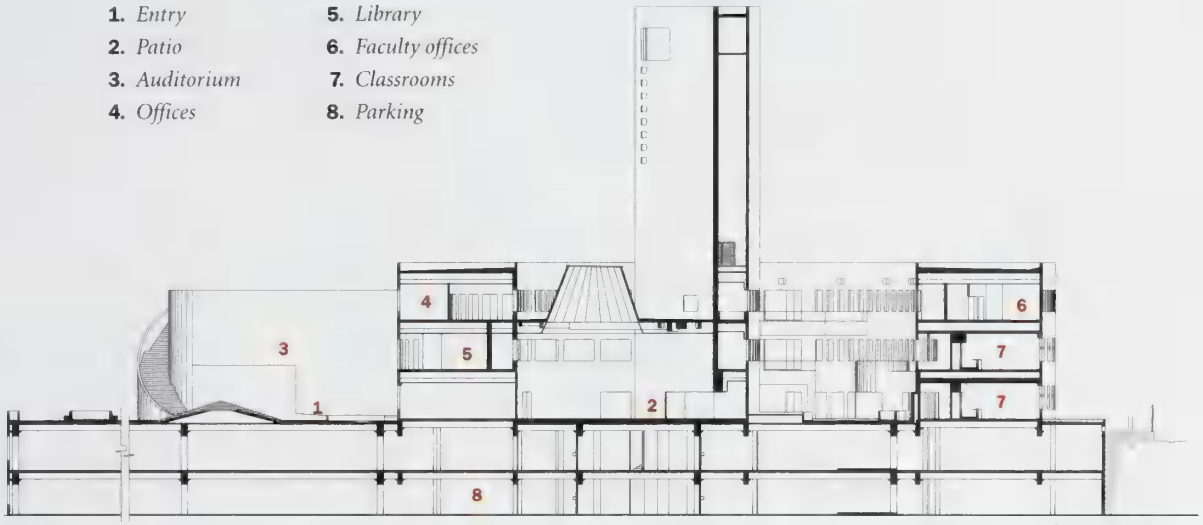


Solution

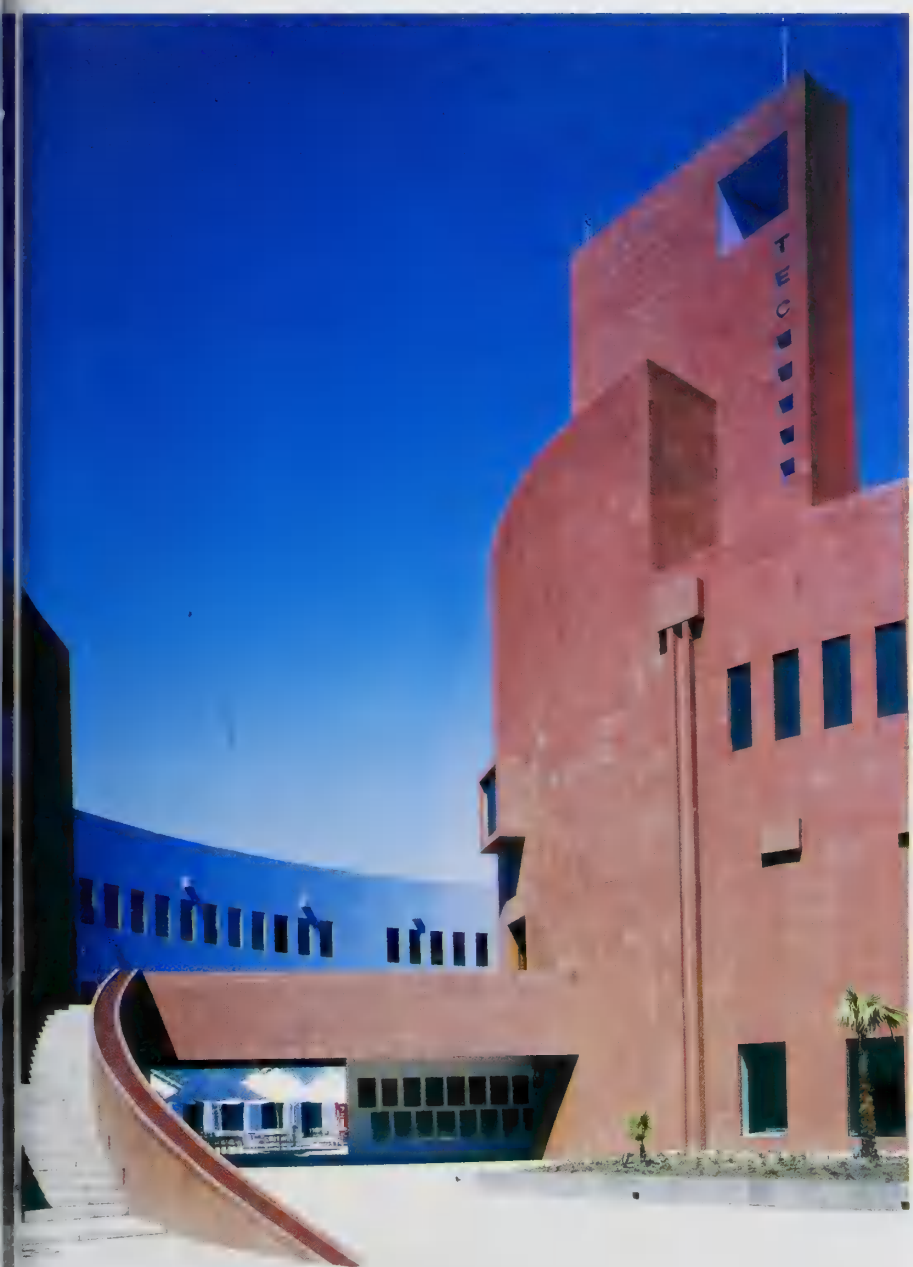
Think of it as a snail on top of a box. The base of the poured-concrete building is a long, two-story parking

The helix form atop the parking garage leaves room for an ample plaza at the entry (below) and access to the three-story school building. Deep red pre-cast concrete panels form outer walls, while blue stucco coats the inner walls of the spiral.

1. *Entry*
2. *Patio*
3. *Auditorium*
4. *Offices*
5. *Library*
6. *Faculty offices*
7. *Classrooms*
8. *Parking*

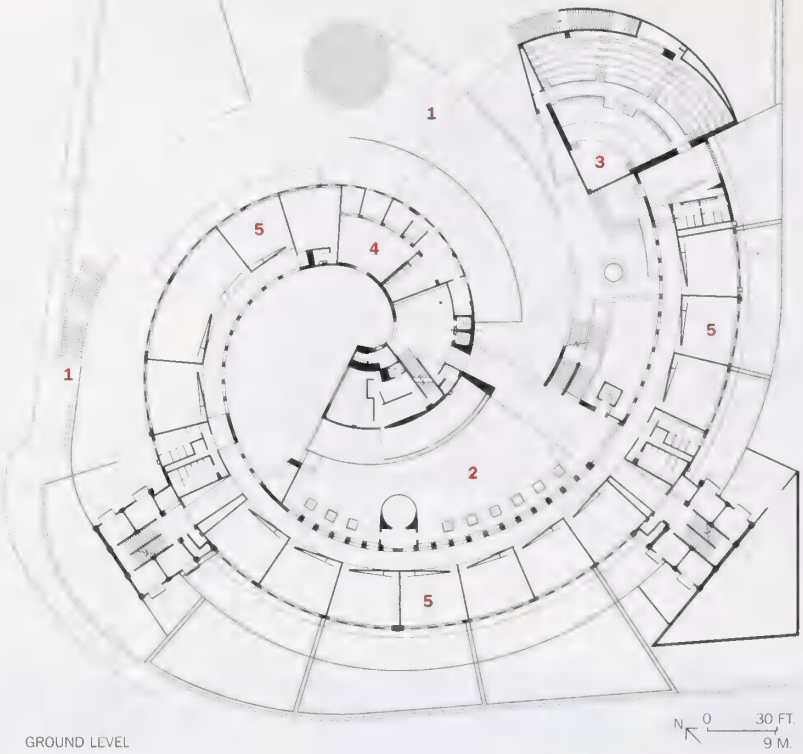


SECTION









GROUND LEVEL

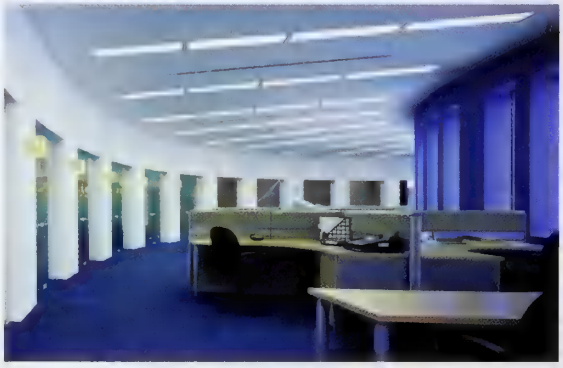
1. *Entry*
2. *Patio*
3. *Auditorium*
4. *Offices*
5. *Classrooms*

garage with slots for 500 cars. Perched above it is a helix-shaped main building, which allowed the architects to create a series of public spaces that narrow from a large plaza used for public gatherings at the entrance to smaller and more intimate spaces at the end. The entire sequence culminates in a dramatic, 30-foot-high atrium, which is enclosed by a skylight.

As you enter the building from the plaza, you arrive at a 300-seat auditorium, a quarter circle in plan. The exterior of the auditorium, like the exterior walls of the rest of the building, is clad in red, 2-foot-square precast aggregate concrete panels and a local Magenta stone. A stucco finish, painted blue, covers the wall that lines the interior of the spiral. This blue, which coolly contrasts with the unbearable desert heat, draws you into the spiral. Halfway through the coiled space is the main entrance to the interior of the building and the atrium. All the classrooms have views toward the park and the mountains, and windows are recessed into the 14-inch-thick walls to ensure that daylight enters, while interior heat gain is minimized.

Out of the center of the building rises an enlarged, rectilinear water tower, 88½ feet high and clad in the red tile that makes the building impossible to miss.

A 30-foot-high atrium occupies the center of the spiral, where a café brings students together (below). The cone-shaped skylight admits daylight into the interior corridors and offices (right) that wrap around it.





Commentary

Not that you were likely to miss this building. While at first glance it may appear to be an architectural flourish, the EGADE graduate school facility is a seemingly complex solution that actually makes good sense on two levels. Programmatically, the variety of spaces created by the spiral makes the building self-sufficient as a campus. It can accommodate ceremonies, classes, and meetings of all sizes, in a thoughtful progression of spaces. Symbolically, in a city sorely lacking architectural landmarks, EGADE is sure to turn heads. The structure is a powerful marker that, while proclaiming the presence of the school, also signals the importance of learning. ■

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Architect Mike Schmieder with Reynolds, Smith and Hills Jacksonville, Florida

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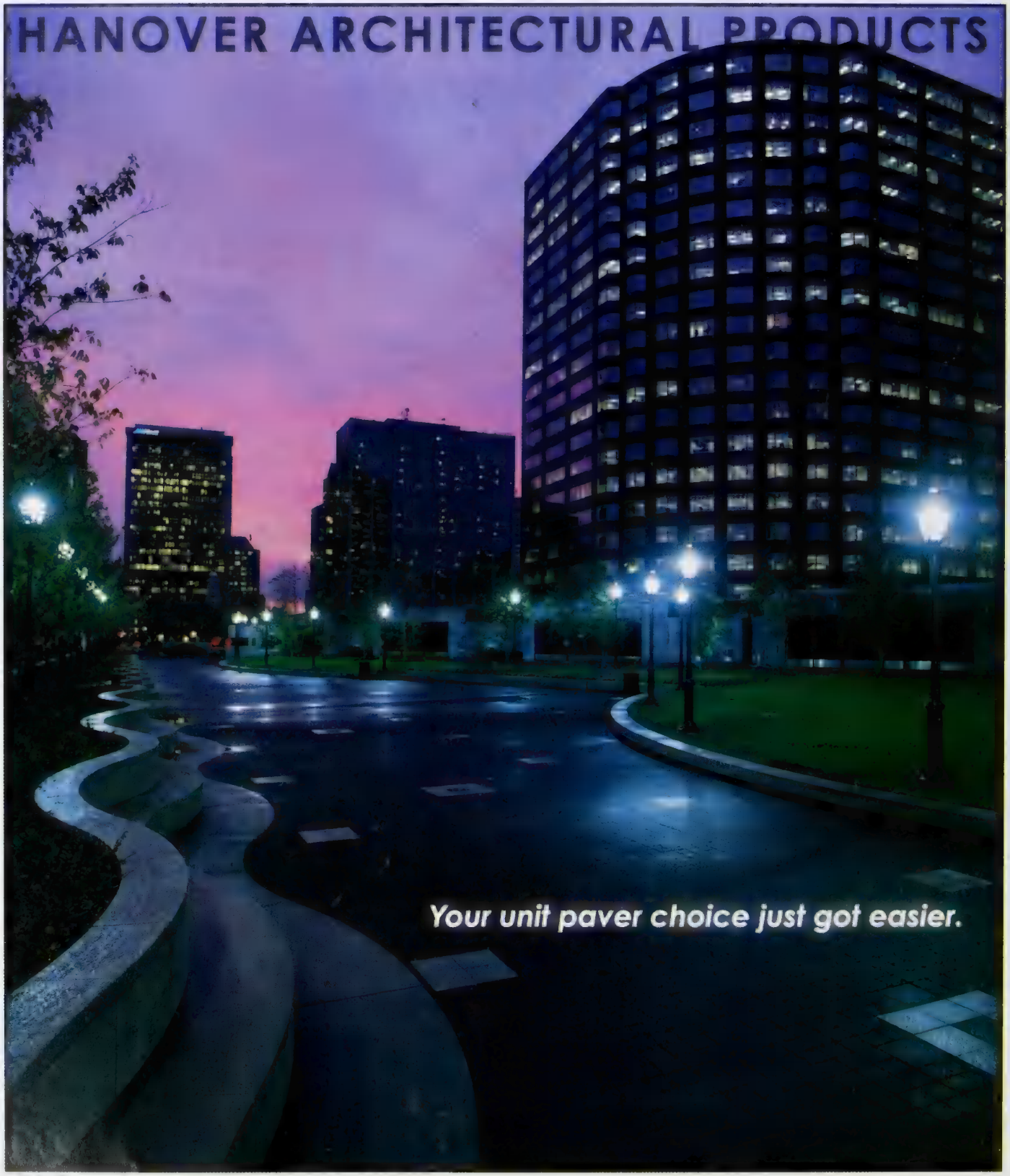
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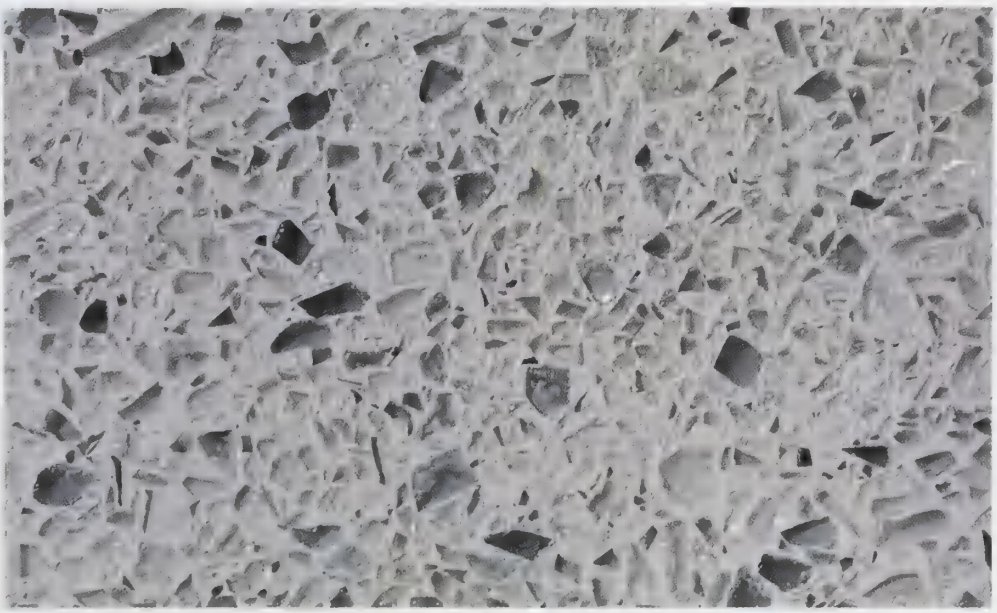
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CIRCLE 27 ON INQUIRY CARD

Plastics Finally Get Respect

NO LONGER A SECOND-RATE SUBSTITUTE FOR QUALITY MATERIALS, A NEW GENERATION OF PLASTICS IS EMERGING AS THE BUILDING MATERIAL OF CHOICE FOR MANY ARCHITECTS AND DESIGNERS.

By Barbara Knecht



Milky white epoxy is mixed with recycled glass to form a terazzolike floor for IBM's E-business Center for Innovation in Chicago. The finish has more visual depth than conventional terrazzo.

It seems as if every dot-com office has been using plastic interior office partitions, so that it has become part of the standard lexicon," remarks San Francisco–based architect Peter Pfau, commenting on the popularity of a new generation of synthetic materials. While it is true that almost every industry in the world has benefited from the invention and evolution of plastics—medicine, electronics, automotive, aeronautic, construction, fashion, furnishings—it's only been in the past decade or two that plastics in all their polyforms have shed their proletariat status as utilitarian products serving the infrastructure behind walls and under floors to be appreciated as architectural materials in their own right. Architects enjoy regulatory latitude in using plastics in buildings, especially in interior applications; however, like all materials that are not fire-rated, their use in areas requiring fire ratings is limited.

For all their polysyllabic names, plastics are actually polymers (chains of molecules that can be transparent, translucent, or opaque), not more complicated than compound materials that are capable of being shaped by molding, extruding, and casting or by drawing into filaments. All the processes that form plastics include heat. Plastics that can be reheated and reformed many times are called thermoplasts, and they tend to be better candidates for recycling. More durable are thermosetplastics, which can be heated and formed only once and are much harder to dispose of. Both types of plastics are used extensively in building design and construction, from insulation, vapor, and roof membranes to windows, gutters, and floor tiles.

Plant cellulose was the basis for some of the earliest man-made plastics, including celluloid, which was invented by John Wesley Hyatt in 1863 as a substitute for ivory in making billiard balls. The first wholly synthetic plastic, Bakelite, is a phenolic resin invented in 1909 by an American chemist named Leo Baekeland. Its applications have ranged phenomenally from electrical insulation to jewelry. Petroleum and natural gas became the building blocks of plastics in the 1920s and 1930s, ushering in an era of experimentation and industry expansion, which led to the development of more utilitarian products (thermal insulation, chemical and water resistors, lightweight and durable structures, and intricately molded parts). The projects here, however, show how some architects are experimenting with plastic materials that are transparent and translucent, such as acrylics, polycarbonates, and fiberglass.

Peter Pfau and others have found ways to push the use of off-the-shelf acrylics and polycarbonates to dazzling effects. In the conversion of Green Glen, a former food-service supply operation in San Francisco, into a multimedia office complex, Pfau used a commercially available system of polycarbonate glazing, typically used for greenhouses, to remake the 25-foot-high facade around a new stair. The polycarbonate panels can be extruded to any length that can be transported to the site. "Polycarbonate carries light well; it bounces around the cells for an amazing effect," said Pfau. "And because it is such a hard material, there is no concern about scratching or damage in an exterior application." In their Green Glen project, the architects increased the thermal properties of the

Barbara Knecht is an architect and principal of a New York City–based consulting firm. She writes about architectural technology, design, and housing policy.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn* *to page 207 and follow the instructions.*

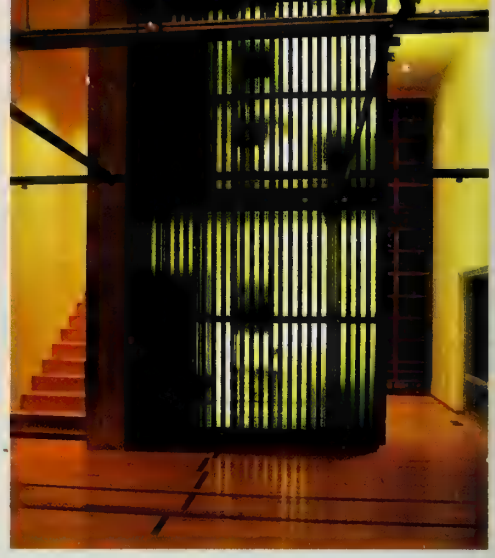
LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Describe innovative ways plastics are being used in architecture.*
2. *Explain where different types of plastics are used in a building.*
3. *Describe the characteristics that make plastics desirable.*

www For this story and more continuing education, as well as links to sources, white papers, and products, go to **www.architecturalrecord.com**





Bathroom walls of polycarbonate divide and define spaces in both houses. The degree of opacity at 216 Alabama (left) or the addition of color at 1603 Random Road (right) are used to vary the effects of light and shadow.





216 Alabama and 1603 Random Road Lawrence, Kansas
Architect: *Dan Rockhill, Kent Spreckelmeyer, Studio 804, University of Kansas, Lawrence, Kansas*
Date of completion: *2000, 2001*
Fabricators and manufacturers: *Lexan (polycarbonate) from GE Structural Plastics*

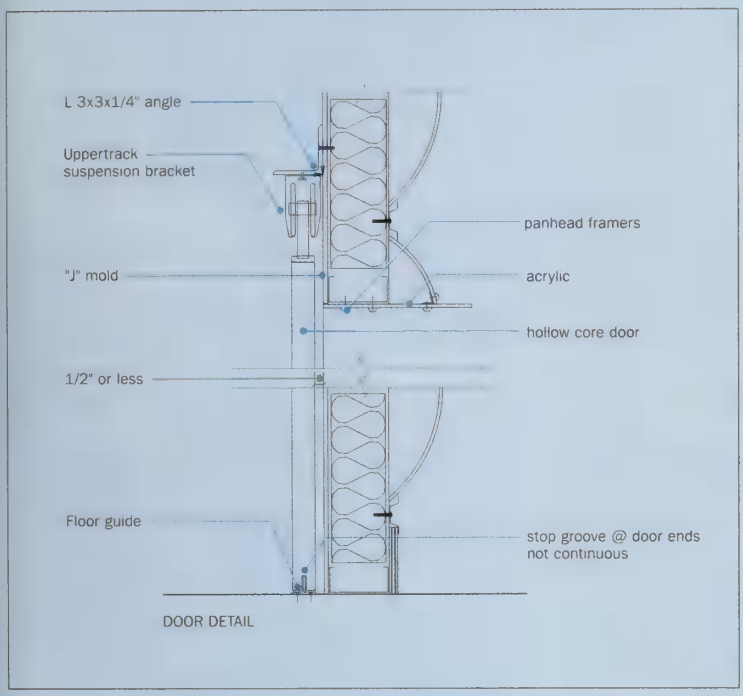
plastic by sandwiching the aluminum frame with two ¼-inch layers that were translucent green on the exterior and translucent white on the interior. The interior wall is washed with floor-mounted lights, which create very different lighting effects in the day and night, and inside and out.

Polycarbonates are popular with the graduate students in Studio 804, a design-build studio taught by Professor Dan Rockhill at the University of Kansas in Lawrence. Students design and build a house that is sold to a low- to moderate-income family. Design-build is conducive to understanding the possibilities and limits of materials. "Plastic has more flexibility and is more forgiving than glass," said Rockhill. "We can work with the material ourselves on site, drilling holes, cutting it, fitting it up." Last year, they enclosed the bathrooms of a house called 216 Alabama with double layers of translucent polycarbonate. The walls, which have the opacity of skim milk, provide the spatial divisions of the interior; the ghosts of the plumbing pipes and the aluminum structural frame are visible within the wall, but there is complete privacy within the room itself.

RECEPTIVE MANUFACTURERS AND FABRICATORS CAN HELP ARCHITECTS ACHIEVE INVENTIVE SOLUTIONS.

A 2001 residential project called Random Road had a design that called for stacked bathrooms, and the effect was varied this time by coloring the polycarbonate. Half-inch-thick clear sheets were sanded with a floor sander to "cloud" them, and then they were painted. "The paint is made exclusively for plastic and results in a translucency more like a stain," explained Rockhill. On-site experimentation led to the final solution: painting one surface of the plastic to get the balance of privacy and translucence they sought.

Receptive manufacturers and fabricators to work with can help designers achieve inventive solutions. Lorcan O'Herlihy, a Los Angeles–based architect, has had success working with a local supplier on several projects. For the offices of YouBet.com (realized in collaboration with Larry Scarpa of Pugh + Scarpa Architects), they used acrylic sheets curved to





The data center at YouBet.com is enclosed by curved acrylic panels fastened to the stud wall with hat channel clips (above and far right). Workstations (right) are enclosed with single sheets of heated and bent acrylic.



YouBet.com
San Fernando Valley, Calif.
Architect: *Lorcan O'Herlihy Architects (Lorcan O'Herlihy, principal), Pugh + Scarpa Architects (Larry Scarpa, principal)*
Plastics suppliers: *Hastings Plastics (workstations); Fisher Lumber (curved wall); Crommie Construction (contractor)*

form workstations and separately to form a wall around the data center.

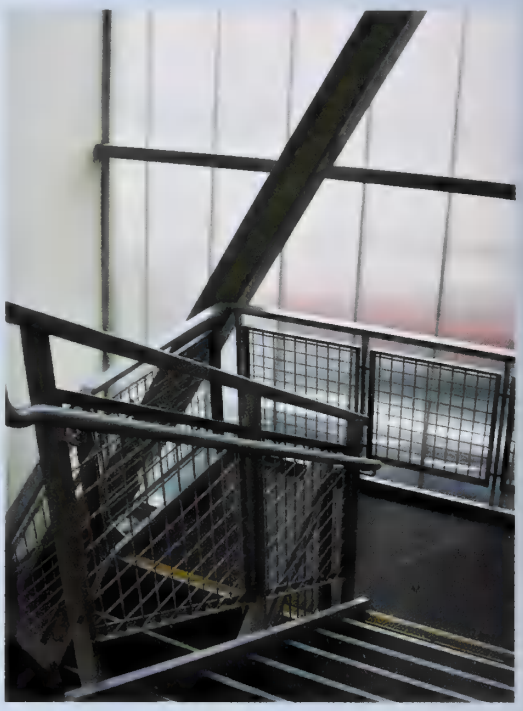
Reinforcing the words of Dan Rockhill, O'Herlihy said, "We like to use this material because it is more malleable than glass; you can put it in an oven and heat it and bend it. The suppliers and manufacturers give us the basic capabilities of the materials and then we work to try to push the limits—for example, increasing the radius of the bend."

"The suppliers are getting more excited about nonconventional, architectural applications [because they mean new markets], but on-site installation is still labor-intensive. Contractors haven't necessarily worked with these materials, and some of them require more care than conventional wall materials," continued O'Herlihy. At YouBet.com in the San Fernando Valley, a single ¼-inch-thick sheet of acrylic is bent with a 2-inch radius at the corners and screwed into a custom-fabricated steel frame for the workstations. A middle-range opacity provides sufficient privacy while enhancing the transfer of light throughout the space. By contrast, the freestanding data center walls are composed of 12-inch-high curved sections of acrylic sheets that run horizontally. Off-the-shelf hat channel clips attach the sheets to the stud wall, which is lit from within the lowest panel. The overall light quality in the translucent panels can be very even and energy saving, because more daylight is transmitted between and among the spaces.

Experimentation with new materials can be time consuming, often requiring testing and prototype production to uncover a material's full potential. IBM asked George Yu and his partner Jason King, principles of Design Office in Los Angeles, to renovate 40,000 square feet on two floors in the IBM building in Chicago for their E-business Center for Innovation. Completed in 1971 and designed with C.F. Murphy, the building is Mies van der Rohe's largest and last building in North America. Design Office, working in collaboration with media design firm Imaginary Forces, wanted to amplify the building's openness and ethereal boundaries in the renovation. Collaboration and experimentation with various plastics manufacturers led them to select a fiberglass resin for a retractable coat closet and a reception-desk enclosure, an acrylic terrazzo for the floors, and a solid surface material for an

By using green translucent polycarbonate on the exterior layer of the facade and white translucent polycarbonate on the interior, the effect changes from inside to outside.





Green Glen
San Francisco, Calif.
Architect: *Pfau Architecture (Peter Pfau, principal)*
Manufacturer: *CPI International*

interactive conference table.

For the coat closet, Design Office sought a seamless profile in a lightweight and translucent material with some integral color. They brought the problem to a Los Angeles fabricator called Performance Composites, which manufactures fiberglass products for industrial and architectural uses. The fabricator accepted the challenge of making a translucent product using fiberglass, the common name for fiber-reinforced plastic (FRP). Glass fibers and polyester resin are combined into a material that is usually filled or sanded and then painted to remove and hide imperfections. According to Francis Hu, President of Performance Composites, "More and more people are using fiberglass, because it is cost-effective and lightweight, and extremely versatile. It is a good designer's material because it is extremely malleable." For the 6-by-2½-by-3-foot closets, wooden molds were constructed, lined with wax to permit removal, and then a clear layer of gel coat was applied. Over that, fiberglass mat, wetted with tinted resin, was layered into the mold to a thickness of ½ inch. In order to achieve the correct color, thickness, and translucency, numerous samples and prototypes were produced to insure that the final finish would be flawless.

MORE PEOPLE ARE USING FIBERGLASS, BECAUSE IT IS COST-EFFECTIVE, LIGHTWEIGHT, AND EXTREMELY VERSATILE.

The same process for the much larger 12-by-3-by-2-foot reception desk yielded a different appearance. "People have described it as looking like a huge piece of taffy, with the imperfections, such as cloudy spots and bubbles, of a piece of candy," remarked George Yu. Besides the effort of achieving the desired visual impact, the architect had to solve a major technical problem. The enormous size and weight (2,000 lbs) of the ¾-inch-thick enclosure required that stiffening ribs be cast into the form to prevent it from deflecting once it had cured.

On the floor, Design Office looked for a material that would give a sense of depth. After considering tile, sandblasted glass, and thick resin,

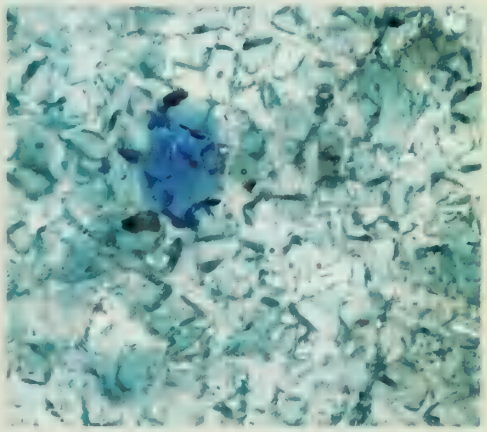




IBM E-business Center for Innovation
Chicago
Architect: *Design Office (George Yu and Jason King, principals), Los Angeles; Hellmuth, Obata, & Kassabaum, Chicago*
Suppliers/manufacturers: *Performance Composites (coat closets, reception desk enclosure); KB Manufacturing (conference table); Northwestern Terrazzo & Flooring (acrylic terrazzo)*



Acrylic terrazzo flooring (top left, bottom right) gives depth to floor surfaces and reflects light throughout the space. Fiber resin coat closets and a reception desk enclosure, made by same process, yield different effects when completed.



they convinced a local terrazzo maker to experiment with clear epoxy and recycled glass. After several tests to get a satisfactory ratio of glass to epoxy and degree of translucency, they put it down in 20-foot-wide alternating bands of clear and milky colored epoxy embedded with colored glass. As Yu describes it, "With the clear epoxy, it feels as if you are standing on a frozen lake, and the milky colored one is the like coleslaw. When the sun is high, the blues and greens of the recycled glass reflect off the ceilings and walls." The final product had effects that neither the designers nor the manufacturer imagined, but it has been so successful that the manufacturer is now marketing the product commercially.

PLASTICS WILL USE MORE RECYCLED MATERIALS AND HAVE INCREASED INSULATING AND STRUCTURAL PROPERTIES.

For the conference table, Design Office used Vesta, a product that starts with the same solid surface liquid material that is used to make sheet goods, such as Corian, but is processed differently. It is applied around a core, typically wood, so the final product is a single, seamless piece of any size and shape—in this case, a 19-foot-long freeform table. Compared to sheet material, Vesta has a higher impact strength and less thermal expansion. It can also be inlaid with a second color or material by carving out a design to the wood substrate, pouring in new material that is then sanded smooth.

Speed and versatility led Imagination (USA), international design consultants, to a fabric-covered space frame for the Samsung Pavilion at the upcoming winter Olympics in Salt Lake City. Durable, yet lacking thermal properties in this application, the chief advantage of the space frame is that it can be erected and removed in a matter of weeks. The pavilion demonstrates the versatility and widespread application of plastic materials. The sides, back, and roof will be covered with a single-ply, PVC-coated polyester fabric with an acrylic lacquer finish. The front facade will be clear PVC preceded by a deeply layered entrance zone, resembling a wave in footprint, which will be con-

structed from molded fiberglass and internally illuminated. Exhibition space within the pavilion will be made in freeform polycarbonate, and display spaces will be acrylic spheres.

Exciting possibilities for new and dazzling architectural effects aside, no one can ignore the impact of petroleum-based products on the environment. There are plenty of landfills and waterways swamped with plastic products that will never biodegrade. The very characteristics that make plastics durable and resistant to chemical and organic deterioration are what make them so tough on the environment. And, still today, petro-

INNOVATION WILL NECESSITATE COLLABORATION AMONG ARCHITECTS, ENGINEERS, FABRICATORS, AND MANUFACTURERS.

chemicals continue to be the major raw material used in manufacturing plastics. But there are credible arguments that show how favorably plastic compares to glass, for example, with regard to the energy needed for manufacturing and transportation; other arguments point to the durability of plastic lumber products for decking and railroad ties, as protection of forests. Research is underway by manufacturers, such as Cargill Dow, DuPont Dow Elastomers, and Exxon, as well as at many universities, to develop new plastics that will not depend on fossil fuels but on a variety of natural products, including beets, corn, and bio-based plastics made from living, renewable organisms. The new generation of plastics will use more recycled materials and will have increased insulating, durability, and structural properties. Developments that make plastics environmentally friendly will, in turn, increase their appeal to architects and designers and their clients. Furthermore, innovation will necessitate collaboration among architects, engineers, fabricators, and manufacturers, a by-product that promises to alter the practice of architecture. ■



Weighing close to a ton, the reception desk has cast ribs for extra strength.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Plastics Finally Get Respect" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers [page 207].**
- **Fill out and submit the AIA/CES education reporting form [page 207] or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. Which was the first wholly synthetic plastic?
- **a.** celluloid
- **b.** Bakelite
- **c.** polycarbonate
- **d.** Plexiglas

2. What was the building block of plastics during the 1920s and 1930s?
- **a.** petroleum
- **b.** plant cellulose
- **c.** organic compounds
- **d.** acrylic

3. Translucent walls are often made from which type of plastic?
- **a.** polyurethane
- **b.** melamine-formaldehyde
- **c.** polycarbonate
- **d.** polyethylene

4. Which type of plastic is the best candidate for recycling?
- **a.** thermoset
- **b.** polyvinyl chloride
- **c.** thermoplastic
- **d.** phenolic resins

5. Why do students in the graduate studio prefer to work with plastic rather than glass?
- **a.** plastics are cheaper to buy
- **b.** plastics come in more colors
- **c.** plastics are lighter weight
- **d.** plastics are easier to cut and fit

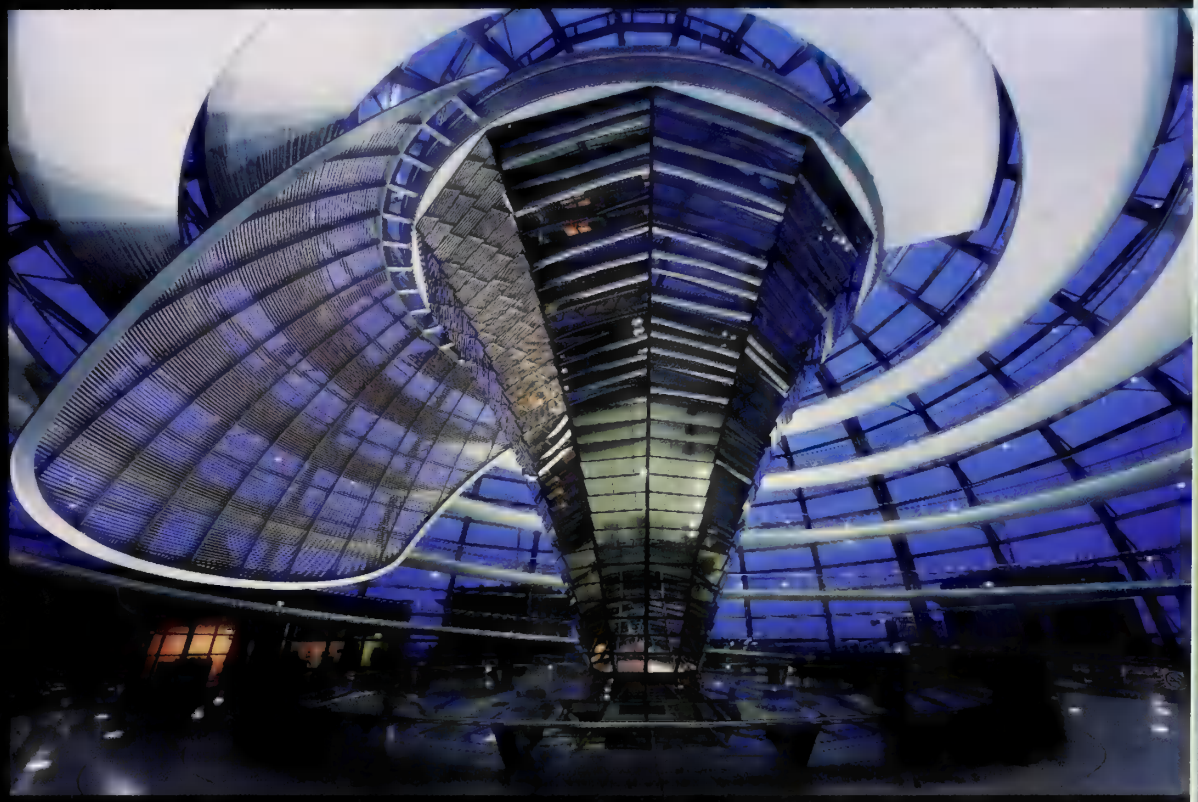
6. What type of plastic would be used in curved sheets?
- **a.** phenolic resins
- **b.** polyester
- **c.** acrylic
- **d.** polyurethane

7. All of the processes that form plastics use which?
- **a.** recycling
- **b.** heat
- **c.** glazing
- **d.** spinning

8. How can clear polycarbonate be made translucent?
- **a.** sanding it
- **b.** heating it
- **c.** adding milk to it
- **d.** tripling the thickness

9. One of the advantages of translucent wall panels is which?
- **a.** they are labor-intensive
- **b.** they distribute light evenly
- **c.** they reduce noise
- **d.** they distribute heat evenly

10. Fiberglass is used because of which property?
- **a.** it is rigid
- **b.** it is normally translucent
- **c.** it is clear, with no cloudy spots
- **d.** it is versatile



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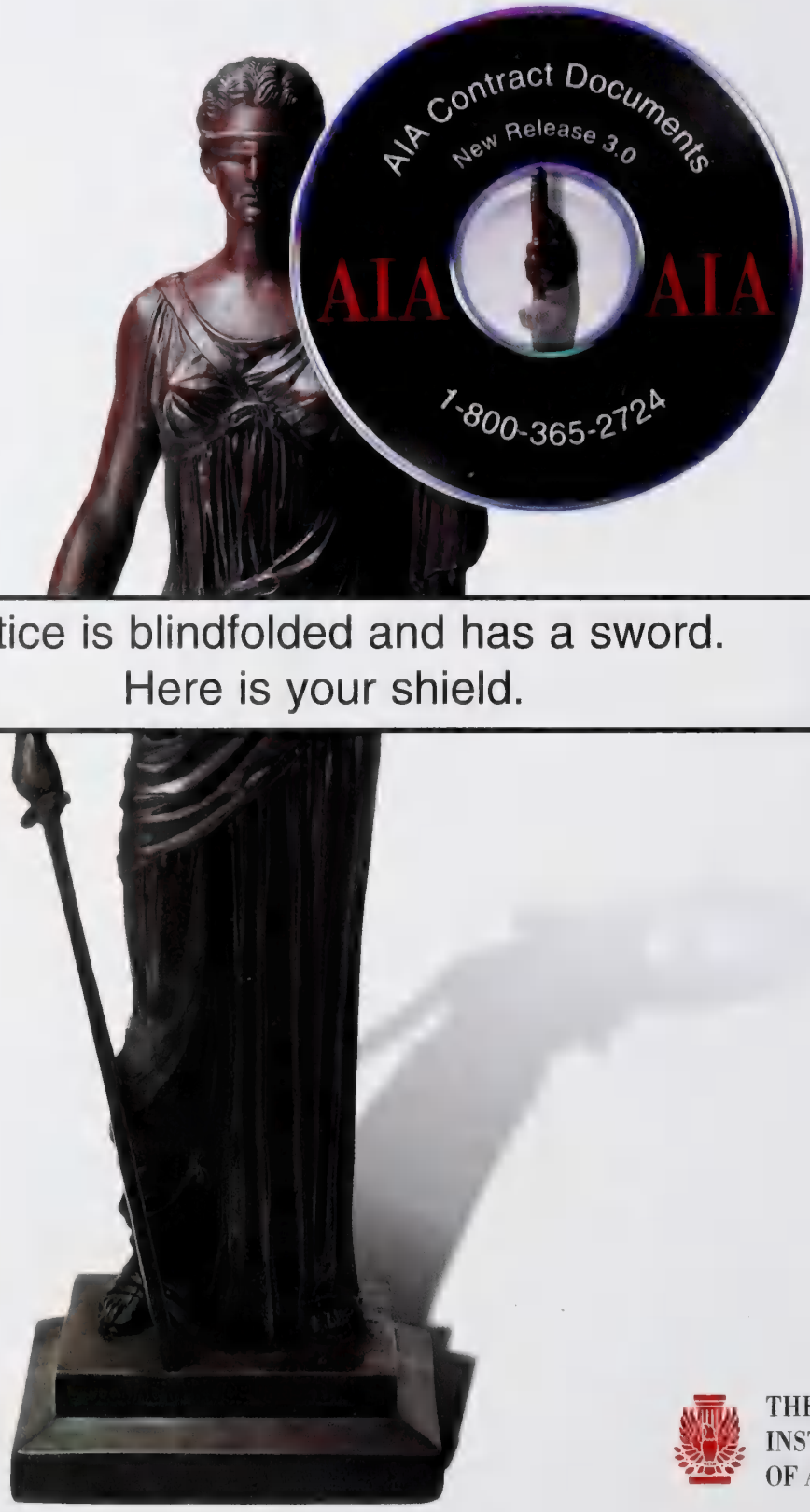
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CIRCLE 28 ON INQUIRY CARD

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AR

The Vinyl Institute



Courtesy of Alside, Inc., Akron, Ohio



Courtesy of Sarnafil Inc., Canton, Mass.



Courtesy of VEKA Inc., Fombell, Pa., and Republic Windows and Doors, Chicago

Vinyl By Design:

ACHIEVING A SUCCESSFUL BUILDING ENVELOPE WITH VINYL

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **Vinyl By Design: ACHIEVING A SUCCESSFUL BUILDING ENVELOPE WITH VINYL.** To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 119, and follow the reporting instructions on page 210 or use the Continuing Education reporting form located at www.architecturalrecord.com.

LEARNING OBJECTIVES

- Write specifications for vinyl roofing, siding and windows to avoid product and installation failures.
- Describe the standards applicable to vinyl building products to ensure performance.
- Identify the resources available to contact for further information on vinyl building materials.

Building owners want performance from every component of the new or renovated building delivered through their architect's design process. Amid growing pressure to deliver better buildings faster and at lower cost, architects reach for the materials that they know and trust to help them meld form, function and aesthetics in ways that achieve the performance clients demand.

As a building material, vinyl combines characteristics of traditional materials with advanced technologies and innovation that give it versatility in many applications. As with products of any material, optimum performance of vinyl products requires not only a clear understanding of how they perform once put into service, but also proper specification and a commitment to ensuring that qualified installers deliver the workmanship on which optimum performance depends.

This continuing education section examines three applications in which vinyl can be an appropriate design solution for the building envelope – roofing, siding and windows. Discussion of each vinyl application offers guidance on design and specification that can help to ensure the product performs as expected while protecting design intent and reducing exposure to design liability.

ROOFING

Reflective (light-colored) vinyl roofing membranes can be engineered to withstand decades of wear and tear and remain watertight under the most demanding weather conditions while, in many geographic locations, reducing a building's space conditioning energy consumption.

Today's vinyl membrane roof – a clean, safe, energy-efficient and less costly alternative to asphalt built-up roofs – is typically internally reinforced with a woven fabric such as polyester or incorporates internal glass fibers, making it highly durable and able to withstand both the elements and stresses imposed by building movement. Vinyl roofing systems are also naturally fire retardant, can have dirt-resistant coatings and generally offer a long service life.

ASTM D4434: "Specification for Poly (Vinyl Chloride) Sheet Roofing" sets minimum standards for weathering performance of vinyl roofing membranes. Under these test criteria, a vinyl sheet must show no evidence of cracking or crazing and only negligible evidence of discoloration after 5,000 hours of exposure to a xenon arc light source, water spray and elevated temperatures – all factors that can degrade roofing membranes and lead to failures once they are placed in service.

Vinyl roofing systems are not off-the-shelf installations; each one is a customized, engineered fit. The numerous variables involved make it important to take into account manufacturers' guidance when designing and specifying a project. A 1996 study by DPIC, a professional liability insurance provider for the design community, found that roofs were the element most often involved in claims against architects (10 percent) over the studied time period. Some issues to keep in mind:

Seaming. Vinyl roofing membranes can be fabricated in a variety of widths and lengths to meet the exact dimensions of a roof, but for most installations, roofing sheets are joined by hot-air welded seams. The performance of a single-ply membrane roofing system depends on the strength of these seams. When these seams are properly joined following the manufacturers' instructions, they are highly effective in preventing water and even root penetration, which is why vinyl membranes are commonly used as a component in the new green, or planted, roof systems.

Substrate Compatibility. When considering a vinyl membrane over an asphalt or polystyrene substrate, the two materials should be separated to prevent premature aging of the membrane and/or the extraction of the plasticizer in it that makes it flexible. Typical separator sheets used for this purpose are made from polyester or fiberglass. Some vinyl roof manufacturers produce asphalt-resistant membranes.

Weatherproofing. Wall flashings should be carefully located at an elevation far enough above the anticipated finished roof level to ensure that minimum base-flashing heights can be met for maximum positive mechanical weatherproofing. By doing this, it is possible to limit the reliance on sealants as a primary means of making the system weathertight. Sealants may have a shorter service life than the other components of the roofing system.

Moisture Control. Because of seasonal thermal cycles that affect inward and outward movement of water vapor, the presence of insulation and vapor retarders in the roof system can increase the likelihood of condensation entrapment. Due to its water vapor permeability characteristics, a vinyl roof membrane can actually aid in a drying-out process by allowing trapped moisture to aspirate through the membrane. This "breathing" process can maximize the thermal performance of the roof insulation by keeping it dry, and can also reduce the potential for corrosion of steel roof decks and fasteners.

Warranties. A warranty should be carefully selected when specifying vinyl roofing, as warranty issues can have an impact on long-term owner satisfaction. Unless a full-system warranty is provided, roof insulation, fasteners and other roofing components may be excluded. Another consideration is a warranty that continues coverage even under water ponding conditions which sometimes occur despite skillful design and workmanship.

SIDING

Vinyl siding's combination of durability, affordability, attractiveness, low maintenance and design versatility makes it a popular material choice for residential and light commercial projects. Today, more dramatic shadow lines and thicker planks plus dozens of finishes, colors and architectural trim accessories are causing architects to rethink their exterior cladding design approaches on even high-end projects.

Better products are driving this renewed popularity as manufacturers strive to meet or exceed ASTM D3679: "Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding." This consensus standard includes 12 different tests to evaluate the quality of vinyl siding, measuring such performance attributes as weathering, wind load resistance, impact resistance, surface distortion and heat shrinkage.

To help architects identify products that meet or exceed ASTM D3679, the Vinyl Siding Institute (VSI) sponsors the VSI Vinyl Siding Certification Program and maintains up-to-date listings of certified products. Before a product can be certified – and in order to maintain certification – an independent testing laboratory conducts unannounced product inspections and reviews manufacturing facility quality programs. Specifying that panels be VSI-certified ensures that the quality standards established by ASTM D3679 are confirmed by Architectural Testing, Inc., a company specializing in comprehensive testing services for building envelopes.

In addition to specifying reference standards, it is beneficial to go even further using a prescriptive approach, describing the desired siding characteristics in the Product section of the specification. Providing exact detail on the following items can go a long way to ensuring client satisfaction.

DESIRED SIDING CHARACTERISTICS

Profile	Examples: Double 4-inch, Triple 3-inch, Dutch lap, clapboard
Texture	Matte or grain (low gloss) for a finish more like painted wood
Thickness	Equal to or greater than .040 inch for best impact resistance
Butt Height	Greater than 1/2 inch for deeper shadow lines

When installed correctly, certified vinyl siding can add to the overall water resistance of a building. In particular, it will provide the first line of defense against water penetration of the building envelope. Tests conducted in 2000 at Building Science Corporation (Westford, Mass.), a building science consultancy with an emphasis on moisture dynamics, concluded that virtually all of the 10 liters of water poured into the top of a vinyl-sided wall panel drained off in the top half of that panel, dispersing so effectively that no water was observed on the backside of the panel at the middle and lower view ports.

In order to make the most of vinyl siding's benefits, specifiers should require installers to follow manufacturers' instructions. Awareness of the following key variables associated with installation will help specifiers deliver what they promise in their design:

Selection of Related Building Materials. Proper sheathing or other substrate, wall preparation and accessories will ensure vinyl siding's ability to perform as expected. Unseasoned framing lumber should be avoided as a substrate because warping wood can affect the straightness and appearance of the siding. A weather-protective barrier such as a house wrap or building felt should be applied before installing siding, and J-channels and corner posts sized to match the siding panels.

VINYL'S ENVIRONMENTAL AND ECONOMIC BENEFITS

Some vinyl window and roofing products carry the ENERGY STAR® designation from the U.S. Environmental Protection Agency and U.S. Department of Energy, meaning these products perform as well as or better than comparable models while using less energy and saving money.

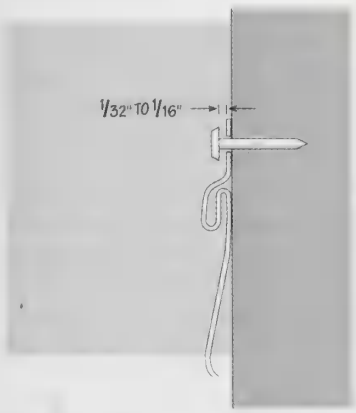
The National Fenestration Rating Council (NFRC) qualifies windows for the ENERGY STAR rating on the basis of the products' U-factor (rate of heat loss via the window) and Solar Heat Gain Coefficient (solar heat gain stemming from a window's performance). Windows that qualify bear a label from the NFRC. Qualifying U-factors and SHGCs for the three climate zones are:

	U-FACTOR	SHGC*
Windows for Northern States	0.35 or below	N/A
Windows for Middle States	0.40 or below	0.55 or below
Windows for Southern States	0.75 or below	0.40 or below

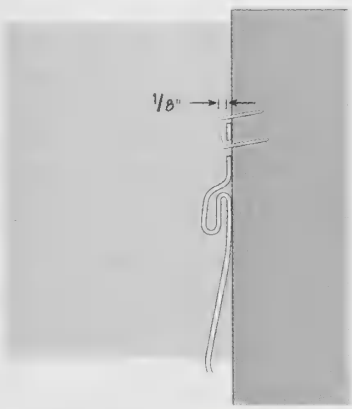
*Solar Heat Gain Coefficient

All ENERGY STAR-qualifying vinyl roofing systems have been tested as having an initial solar reflectivity of at least 0.65 – meaning that 65 percent of the solar heat is reflected, and only 35 percent absorbed. Some manufacturers offer roofs reflecting in excess of 80 percent. Benefits of using these products include extended roof life, reduced air-conditioning demand and lower surrounding air temperature or reduced "heat island effect." Asphalt built-up roofs, by comparison, reflect between 6 percent and 26 percent solar heat.

In a federal study released in June 2001, researchers at the Lawrence Berkeley National Laboratory measured and calculated the reduction in peak energy demand associated with a vinyl roof's surface reflectivity. Its findings: compared to the original black rubber roofing membrane on the Texas retail building studied, a retrofitted vinyl roofing membrane delivered an average decrease of 42° F in surface temperature, an 11 percent decrease in aggregate air conditioning energy consumption and a corresponding 14 percent drop in peak air conditioning energy consumption.



Leave 1/32" to 1/16" between nail heads and the nailing flange.



Aim the gun upward, with anvil positioned about 1/8" from wall to achieve correct depth.

Courtesy of Alside, Inc., Akron, Ohio

Accommodation for Material Movement. All building materials have expansion and contraction characteristics, and vinyl siding is no exception. Vinyl siding needs to have room to expand and contract longitudinally in the normal course of daily temperature changes as well as over seasonal extremes. The length of a typical panel could vary as much as 3/8 of an inch, depending on whether it was installed in extremely hot weather or extremely cold weather. If not allowed space to adjust to temperature fluctuations, the surface distortion known as "oil-canning" may result. To avoid locking the siding to the building substrate, nails or other recommended fasteners should be affixed in the center of the nailing slot and not overdriven. In addition, a minimum of 1/4–inch clearance should be left at all openings and stops.

Avoiding Blow-Offs. Although proper installation plays a major role, in areas where high wind pressure is a concern, specifying a panel with a rollover nail hem will help ensure long-term performance.

Assuring Appearance. To enhance the overall appearance of an exterior design incorporating vinyl as the cladding, all panel joints should face the same way, typically away from building entrances and the building's most common focal points. This can be facilitated by making sure panels overlap by one half the length of the notch at the end of the panel (1 inch), and staggering end laps so that no two courses are aligned vertically unless separated by three courses. Specifying a reinforced top lock makes a panel more resistant to following variations in the wall, thus maintaining a straighter and truer appearance.

WINDOWS

Vinyl windows offer the same performance characteristics and design flexibility that specifiers rely on from windows made of traditional materials, with the added benefits of high thermal energy efficiency, low maintenance and high durability. The compounds used in vinyl window manufacture incorporate ultraviolet inhibitors for improved weather resistance, as well as stabilizers to protect the frames from cracking, splitting, pitting, peeling or chalking.

The type of building and its orientation, geographic location, wind zone, exposure and terrain, as well as local code requirements, determine the performance criteria for a given window application. Although vinyl currently is not specified for commercial high-rise windows due to extreme wind

load resistance requirements, vinyl-aluminum composite window products are being developed for these applications.

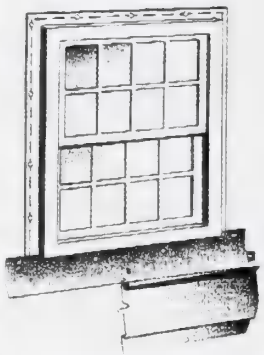
The American Architectural Manufacturers Association (AAMA) certifies window products. AAMA-certified windows are tested by an independent laboratory for heat resistance in a 300° F hot-air oven for 30 minutes and for dimensional stability in a 180° F water bath for 30 minutes. Window profiles must also pass accelerated outdoor exposure tests in South Florida, Arizona and northern industrial climates for impact strength, wind load resistance and heat buildup. Requirements for wind load, structural load and water resistance are spelled out in ANSI/AAMA/NWWDA 101/I.S.2-97, "Voluntary Specification for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors."

When installed correctly and maintained properly, vinyl window products will deliver long and reliable service and energy savings. AAMA's Installation Masters™ Installer Training and Certification program for all window products provides an avenue for installers to learn the window installation techniques that have been adopted by the fenestration industry. Training and certification of installers provide architects the ability to assure their clients that professionals qualified to do the work have installed the windows. Other specification concerns include:

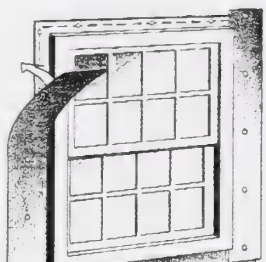
Accurate Measurement of Product. Vinyl windows must be installed with the appropriate clearance between the frame and the rough opening to maximize performance. Failure to do so can lead to frame distortion which, in turn, can lead to expensive water damage to the wall or window cavity, broken glass, damage to the insulated glass seal or inoperable windows – in addition to increased heating and cooling costs from air infiltration and exfiltration.

Accessories. The accessory components used in the installation of vinyl windows also support their optimum performance, and must receive special attention during the specification process.

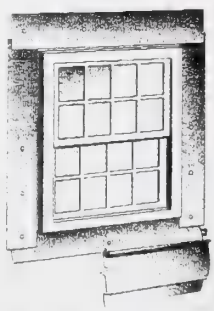
- **Nails and Screws.** All nails should be aluminum or galvanized steel, and steel screws should be galvanized or otherwise protected from corrosion. These fasteners will resist staining, oxidation and deterioration. Correctly sized nails and screws provide adequate anchorage and prevent frame distortion, leaks and loosening.
- **Shims.** Vinyl windows should be supported along the full length and width of the sill with solid stock, such as flat shims. If spaced shims are used, they should be spaced according to manufacturers' instructions. When shims are not applied properly, the vinyl sill can sag between supports, which can cause rough operation of horizontal slider windows.
- **Flashing.** To allow any residual water entering the wall cavity to exit freely, adequate flashing should be provided around the entire window perimeter. The specification should indicate that flashing is to be installed in weatherboard fashion, in proper sequence so that each piece is overlapped by the piece above it. Every effort should be made to ensure that the flashing is installed during construction.



Flashing width is determined by the type of trim surrounding the window and where the last full course of siding stops below it. The flashing should extend past the nail flanges of the trim. The width of the flashing under the window must be adequate to divert water to the exterior.



Vertical flashings should be applied by overlapping the previously-secured bottom flashing. Here again, flashing length and width is determined by the type of trim used.



Apply and secure the top flashing by overlapping the side pieces. For optimal protection at the window head, make two vertical slits in the building wrap, inserting the top flashing behind it. Seal the resulting seam with a compatible water-resistant tape.

Courtesy of CertainTeed Corporation, Wolverine Vinyl Siding, Valley Forge, Pa.

Sealant. As the first line of defense between the elements and a building's interior, sealant provides a barrier between two adjacent materials against the penetration of water and air, making it an important product choice. It is important to consult with sealant manufacturers for recommendations on a given application; adverse chemical reactions with the window, mounting surface and finished wall can compromise the seal and damage materials. In general, elastomeric joint sealants – including polysulfides, polyurethane and silicone – adhere well, remain flexible and are fully compatible with vinyl.

It is important to specify that sealant be applied between the window frame and the rough framing, flashing and/or house wrap or building paper, integrating all of the components and providing effective water management. Sealant should also be specified at the joint between the window jambs and sill. This will reduce the possibility of water entering the wall cavity as it runs down the face of the window or wall.

CLOSING

Managing design liability and avoiding risk are founded upon a conscious awareness of the small but important details. The key is to understand potential problems before they occur and to proactively specify the solutions to them.

Familiarity with the inherent characteristics of any building material, along with the performance capabilities of specifiable products made with that material, aids in this process. Documenting the selection of a product through drawings and specifications should take this understanding into account, and the important role of its proper installation should not be underestimated. Each part of the process has a major impact on the building ultimately delivered to the owner. In the best of all worlds, the result will be a successful, high-performing building – delivered on schedule and within budget – that will be a continuing source of satisfaction to both the architect and the client.

TECHNICAL ASSISTANCE

Technical assistance on vinyl roofing, siding and windows is available from the following resources:

ALL APPLICATIONS

The Vinyl Institute's electronic binder on all vinyl building products, including roofing, siding and windows – Vinyl By Design™: An Online Resource for Building Professionals – is at **www.vinylbydesign.com.** Product manufacturers are included.

For the full text of individual ASTM standards, go to the ASTM Store at **www.astm.org.**

ROOFING

A database to assist with the selection of reflective vinyl roofing materials, sponsored by the Lawrence Berkeley National Laboratory, is at **http://eetd. lbl.gov/CoolRoof/.**

For more information on vinyl roofing product manufacturers that have partnered with the ENERGY STAR® program, visit **www.energystar.gov.**

Further information on the single-ply roofing membrane industry is available from SPRI at **www.spri.org.**

SIDING

A complete list of certified vinyl siding products is available at the Vinyl Siding Institute's Web site, **www.vinylsiding.org**, or by calling the Vinyl Siding Information Center, 888-FOR-VSI-1. Installation guidance can be found in VSI's "Vinyl Siding Installation: A How-To Guide."

For more information on the Building Science Corporation tests of vinyl siding, go to **www.buildingscience.com** or call (978) 589-5100.

WINDOWS

For a directory of certified vinyl window products, the American Architectural Manufacturers Association's Installation Masters™ training manual or the full text of ANSI/AAMA/ NWWDA 101/I.S.2-97, go to the Publications Store at **www.aamanet.org.**

For more information on vinyl window product manufacturers that have partnered with the ENERGY STAR program, visit **www.energystar.gov.**

INSTRUCTIONS:

Refer to the learning objectives on page 115. Complete the questions below. Then answer test questions and fill out the reporting form on page 210 and submit it or use the Continuing Education reporting form on *Record's* Web site - www.architecturalrecord.com - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. Vinyl membrane roofs are typically reinforced with any of these materials except which?
A: a. woven fabric; b. polyester; c. asphalt; d. glass fibers

Q: 2. Vinyl roofing membranes are tested to withstand hours of exposure to all except which?
A: a. water spray; b. extreme cold temperature; c. xenon arc light; d. elevated temperature

Q: 3. The standard specification for vinyl siding establishes minimums for which?
A: a. performance attributes; b. installer qualifications; c. range of colors available; d. number of courses to be aligned vertically

Q: 4. Vinyl membranes need to be separated from asphalt or polystyrene substrates to prevent which?
A: a. dark staining on the light reflective vinyl; b. condensation forming between the vinyl and the substrate; c. algae growing on the surface of the vinyl; d. extraction of the plasticizer that makes vinyl flexible

Q: 5. Guidelines for assuring appearance of vinyl siding include which?
A: a. facing all panel joints toward the building's focal points; b. specifying a reinforced top lock; c. aligning end laps vertically; d. making sure panels do not overlap

Q: 6. The water vapor permeability characteristics of vinyl roofing are beneficial for all except which?
A: a. allowing trapped moisture to aspirate through the membrane; b. reducing the potential for corrosion of steel roof decks and fasteners; c. keeping water off the roof membrane; d. keeping the roof insulation dry

Q: 7. The most important reason elastomeric joint sealants are used for vinyl windows is which?
A: a. other types of sealants take longer to set up; b. other types of sealants are more expensive; c. elastomeric sealants remain flexible; d. elastomeric sealants can be painted while others can't

Q: 8. The AAMA certifies window products for all of these except which?
A: a. heat resistance; b. dimensional stability; c. accelerated outdoor exposure; d. permeability

Q: 9. Failure to measure accurately for vinyl windows will not result in which?
A: a. damage to the insulated glass seal; b. inoperable windows; c. increased heating and cooling costs; d. oil-canning

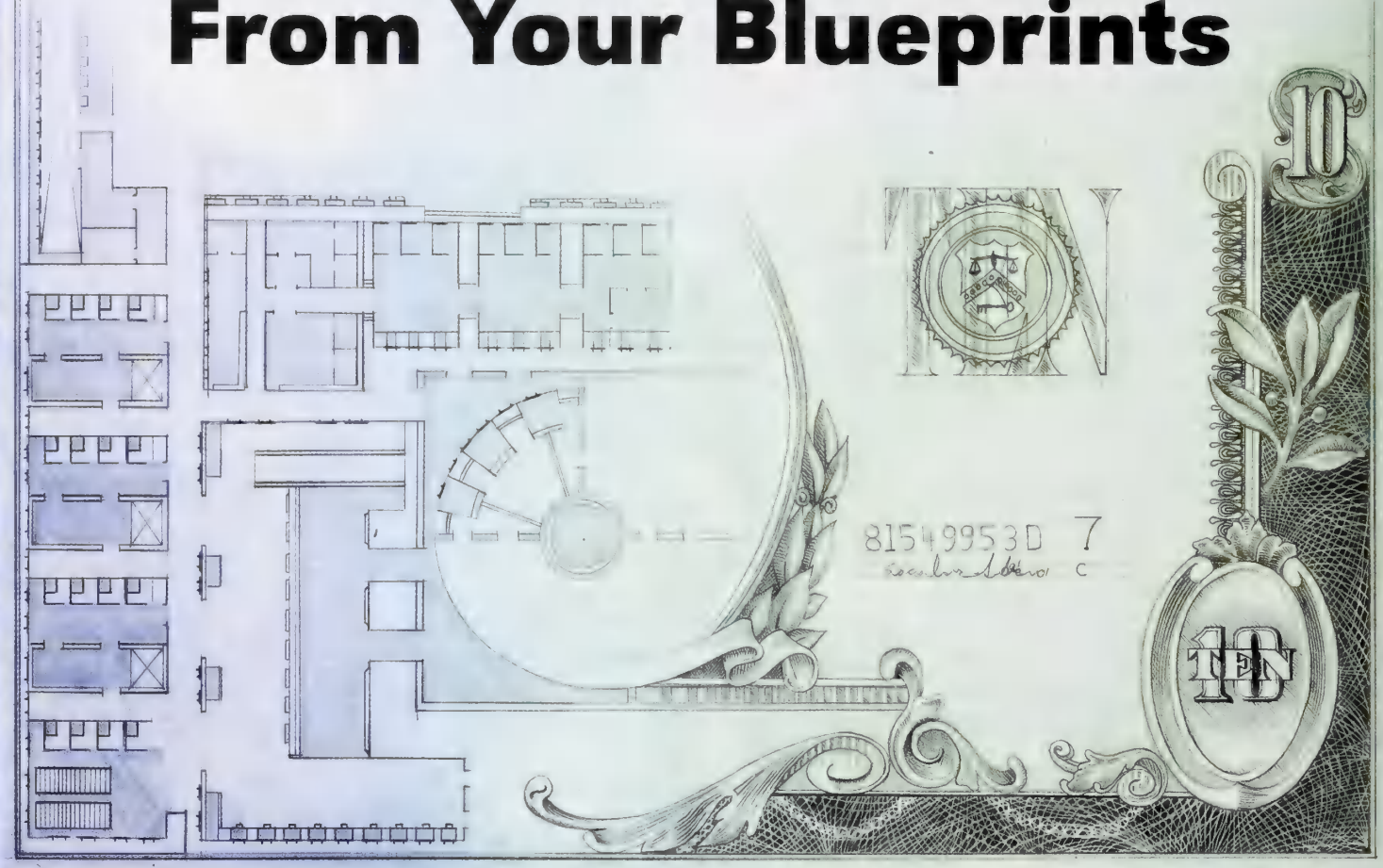
Q: 10. Which of these should be avoided to protect the appearance of vinyl siding?
A: a. house wrap; b. unseasoned framing lumber; c. building felt; d. J-channels

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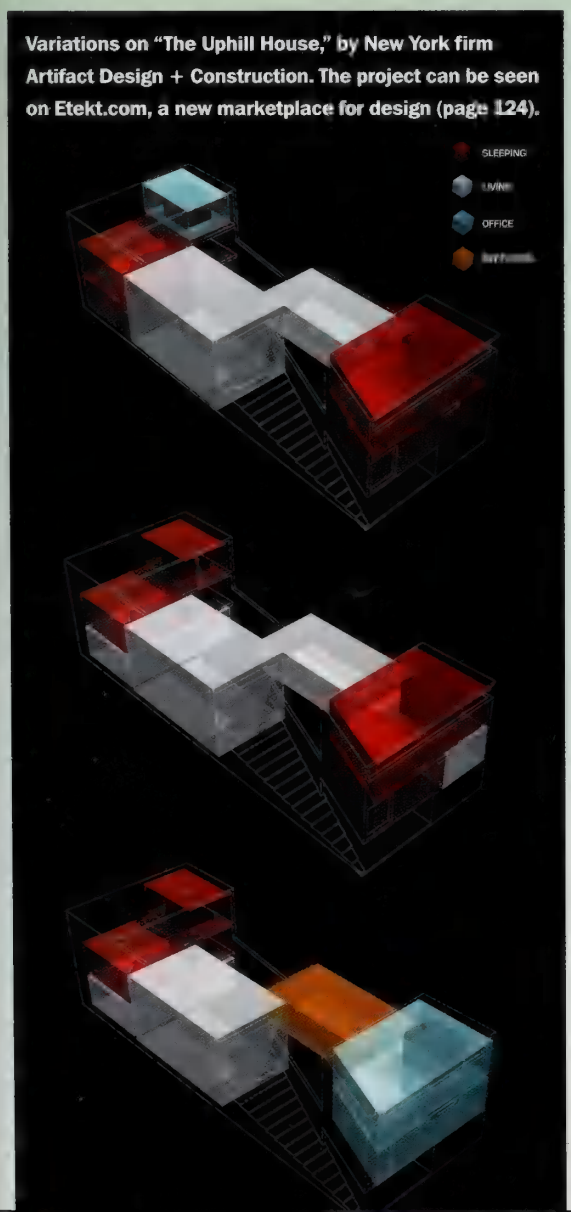
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CIRCLE 30 ON INQUIRY CARD

THE DIGITAL PRACTICE

If your office caught fire tomorrow, could you get back to work a day later?



Variations on "The Uphill House," by New York firm Artifact Design + Construction. The project can be seen on Etekt.com, a new marketplace for design (page 124).

No subject is without its post–September 11 implications. For two architecture firms in lower Manhattan, the World Trade Center tragedy was underscored by the need to find new space and recover data as quickly as possible. As RECORD reported in October [page 26] and November [page 35], the offices of Mancini Duffy and Gruzen Samton were destroyed when the twin towers were attacked. Mancini Duffy retrieved CAD files from their clients and recovered financial data from an off-site archive. Gruzen Samton had to pry open a partially melted safe to get at their backup tapes. They also retrieved some data from their consultants.

If the importance of backing up and storing digital data off-site was doubted before September 11, it became crystal clear in light of stories like these [see also Digital Architect, April 2001, pages 177–178]. With more and more of a firm's work stored in digital media, the value of having backup measures in place is enormous compared to the modest sum needed to invest in them.

Now, on to this quarter's feature: a story on how Macintosh computers are used in architectural practice. This is the first time a major article devoted to the Mac has appeared in these pages. I suspect many architects love Macs for their winsome appearance, even if they don't use them. And why not? A computer is nothing if not a miniature building: a place where interactions happen, knowledge is stored, decisions get made, and a thousand invisible mysteries unravel. Like good architecture, the Mac's design transcends its mundane functions, rendering them sublime. *Deborah Snoonian, P.E.*

123 **Digital Briefs**
Jerry Laiserin, FAIA, and Christina Rogers

127 **The Macintosh Computer in Architectural Practice**
By Louis B. Smith, AIA

135 **Digital Architect: Using Digital Tools to Enhance and Expand Services**
By Jerry Laiserin, FAIA

139 **Digital Product Reviews**
By Jerry Laiserin, FAIA



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CIRCLE 31 ON INQUIRY CARD

Digital Briefs

A new trend in CAD software: solutions that coordinate information among all the design disciplines ▪ Architects team up to create an online marketplace for residential design

With More Powerful Hardware, Multidiscipline Design Software Has Its Genesis



Tools that automatically convert single-line HVAC schematics to fully modeled ductwork help architects and MEP engineers verify equipment clearances during the design phase.

Ever since the earliest CAD systems were conceived, the Holy Grail for software developers, vendors, and users alike has been the single building model—a software representation of a building project that integrates all design data for all design disciplines. However, until now, slow processor speeds and memory limitations of computer hardware curbed software's capabilities to provide such an application. In the past, architects, landscape architects, and engineers have settled for 2D drafting software that delivered digital equivalents of paper drawings but did little to aid coordination of drawings within or across disciplines. But this past year, several leading software developers announced releases or plans to release multidiscipline design tools that address the long-standing coordination challenges for the A/E industry.

This trend toward automatic, electronic coordination of data from all the building disciplines has been in the making for some time. In the late 1990s, improved hardware speed and performance coupled with lower prices supported the development of intelligent 3D design software, sometimes called object CAD or parametric modeling, which simplifies the coordination of 2D drawing views within a single discipline, such as architecture or HVAC engineering—but which still does not enable cross-checking between building trades. Interference checking (or clash detection, as it's called in Britain) helps avoid costly construction problems that go undetected during design—such as pipes that penetrate ducts, ducts that cut through beams, or mechanical equipment rooms that are too small for the machinery they're intended to house. Manual comparison or overlaying 2D drawing files for architectural, structural, mechanical, and other trades remains slow, costly, and error-prone. But intelligent 3D software that accommodates the design work of multiple disciplines in a single representation can solve this problem. Benefits go beyond interference checking to improved communication and coordination between architects and their consultants throughout the design process, and potential results include faster project delivery, lower cost of production, and fewer errors.

A/E SOFTWARE OUTFITS ARE UNVEILING TOOLS THAT CROSS-CHECK DESIGN INFORMATION AMONG THE DISCIPLINES.

Leading CAD vendors have begun capitalizing on this opportunity, and they believe their latest products will meet an increasing demand for these solutions. What started as a distant blip on the radar early in 2001 will emerge as a full-blown competitive trend among these developers in 2002.

Among the first products on the market was Nemetschek North America's LandMark program for landscape architecture and sitework, which comes bundled with its flagship VectorWorks Architect (VWA). Building and site information can be modeled separately and then integrated, or modeled together interactively. For example, by defining a building model's first-floor slab as a pad and setting an elevation for that pad, the user can let the building digitally dig its own foundation in the site model. VWA, which runs on both Macs and PCs, also includes libraries of structural components that are parametric—easily customized to represent real structural shapes like wide flange steel sections.

Market-leading Architectural Desktop (ADT) from Autodesk has added Autodesk Building Systems Mechanical and Building Systems Electrical (ABM and ABE), for engineers to model their work within 3D models generated by architects (ABM and ABE run on top of ADT, ensuring consistency among the disciplines). These products automatically generate 3D duct layouts, check for interferences, and create schedules—including panel schedules with accumulated electrical loads by circuit and device. Autodesk's subscription service

WWW For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **www.architecturalrecord.com**

provides unlimited access to new extensions and upgrades as they're released, for additional modeling capabilities and electronic libraries of custom objects representing real components such as pumps, valves, air handlers, and luminaires.

Rather than provide engineers with new tools to match those of architects, Graphisoft positioned its new ArchiCAD HVAC to import engineers' traditional ductwork schematics and automatically convert them to 3D representations of ductwork inside the ArchiCAD building model.

Market upstart Revit Technology has announced integrated structural and site design capabilities for the latest release of its eponymous software. Consistent with Revit's parametric model approach to design software, changes to structural or site information are automatically coordinated with the building model.

Bentley Systems, which recently shipped a major overhaul (version 8.0) to its MicroStation product line, expects to deliver MicroStation Industry Portfolios in early 2002. The portfolio lineup will continue the TriForma name of Bentley's earlier product for architects but will add modules for structural, electrical, and other engineering disciplines.

No vendor has yet covered all trades in its software solutions, and most of these first-generation tools fall short of the complete design needs of the targeted engineers. Furthermore, software companies have yet to address the challenge that confronts an engineer who works with multiple architects using different software. Despite these growing pains, the upswing in multidiscipline design software bears close attention in the months ahead. *Jerry Laiserin, FAIA*

New Web-based service helps architects gain entrée into residential design market

Frustrated with the domination of predesign stock plans in the residential design market, three young architects developed an online service for both clients and architects. Launched this summer, Etekt (www.etekt.com) is an interactive studio that makes marketing and customizing a home design as simple as sending an e-mail.

Today, less than 5 percent of the homes built in the U.S. rely on direct communication with an architect. With the multitude of resources, books, and computer programs available to aid home builders in their design efforts, more and more Americans opt to forego architects' fees for the opportunity to customize their own plans. "One of the things we found in our research," says Etekt's cofounders, Bruce Fisher, Mark Rose, and Matthias Hollwich, "is that people's ability to access information independently via the Internet and other resources has allowed them to rely less and less on professional services." It's a trend that Etekt hopes to combat by offering those services online as a new means of collaboration between client and architect.

Etekt combines Internet-based communication with the one-on-one dialogue traditionally found in architecture studios, allowing clients to make individual decisions and customizations without sacrificing the opportunity for professional guidance. Architects can upload plans, sections, and renderings of a residential design to a database on the site. Clients then use the site's tools to select site, spatial, and lifestyle preferences, which are then matched with an appropriate design from the database. Finally, the client can select a plan and contact the architect to begin formal, contractual collaboration on the final





A residential design on Etekt.com, by Artifact Design + Construction.

design. Etekt collects a portion of the architect's fee for each contract made through its Web site—a common (though not always acknowledged) business model among Internet companies.

A forthcoming parametric design engine, developed by Mark Rose at the Federal Institute of Technology (ETH) in Zurich, will allow real-time manipulations of the plan via the Internet. Clients will be able to move walls, view 3-D renderings from above and below, and even take a virtual tour of the design. Traditional redlining will also be made possible, and clients will be able to comment on potential changes by marking up the digital plan with notes and questions for the architect. Rose hopes that the design engine may one day be a key representational tool for architects and designers, over and above its use on the site.

Etekt is gaining notice within the architectural community and from clients. A number of firms, including Lewis.Tsurumaki.Lewis of New York City and OOS AG in Zurich, have already uploaded designs to the site. They've seen responses from clients and other architects in Europe, Asia, and South America. Fisher is confident that Etekt will expand architectural practice beyond national borders. "Chances to design overseas will be available to firms that would otherwise not have had the opportunity," he says, later adding, "With architects collaborating worldwide, we have the opportunity to pique interest beyond the typical iconography of residential design. We can persuade clients to look beyond aesthetics and toward possibilities of energy efficiency and green materials."

While the site's founders continue to pursue their own projects, they're committed as a team to expanding Etekt and are actively seeking contributing architects and clients. Fisher, who holds an M. Arch. from Columbia University and now has his own firm in New York City, met Hollwich when they were coworkers under Rem Koolhaas at OMA in Rotterdam. Hollwich has worked for several firms in Europe and the U.S., including Diller+Scofidio and Peter Eisenman Architects. He currently teaches at ETH, where he met Rose (a colleague of digital-architecture guru Maia Engeli), an architect who develops Internet-based architectural tools.

Although Fisher admits that marketing the site has been a bit of a challenge lately, he's confident that Etekt will prevail in transforming the market for residential design. "There's a real chance here to merge theory and strong spatial ideas with the mass market and upgrade the quality of living worldwide," he says. "Who knows? One day this just may be the world's largest architectural studio."

Christina Rogers

RIXSON

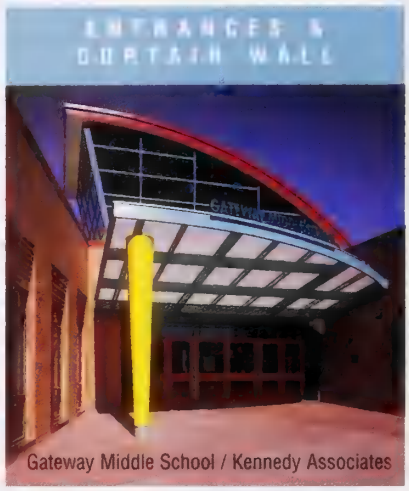
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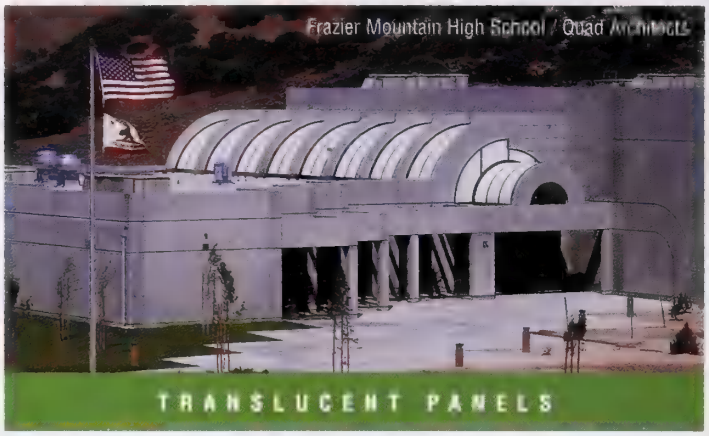
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The Big Apple: How Architects Use the Macintosh in Practice

DESIGNERS DIG THE MAC'S ICONIC LOOK, BUT LOWER-PRICED, FASTER PCS HAVE EATEN INTO APPLE'S MARKET SHARE IN RECENT YEARS. IS THERE A PLACE FOR THE MAC IN TODAY'S DESIGN PRACTICE?

By Louis B. Smith, AIA

The use of computers worldwide will undergo a major shift due to the release of seminal new software. In September, Apple Computer released the latest version of its operating system, OS X (pronounced "O-S Ten"), and, in October, Microsoft countered with Windows XP, the latest version of their operating system. Both of these systems have underpinnings in the same Unix programming language, which provides certain advantages in their performance and stability. With these releases, both companies have made pledges they must now live up to: Apple promises a wealth of industrial-strength scientific applications, and Microsoft assures its users that XP will reduce the occurrence of the dreaded "blue screen of death" caused by system errors that have plagued Windows users for years. Both systems will be put to the test by businesses and consumers in the next several months.

As architects, we are in for years of massive software upgrades no matter what platform is in use currently. Most businesses will change to one of these new operating systems over the next few years as they update their hardware. And nothing about the old and new systems will be similar except for the use of a graphical interface.

As such, this is an opportune time to examine the use of Macintosh computers in architectural practice. How are architects currently using Macs? What types of software and tools are available that practitioners need? What are the major compatibility issues between Macs and PCs? And, overall, what advantages does the Mac platform have—if any—over its Windows-based counterpart?

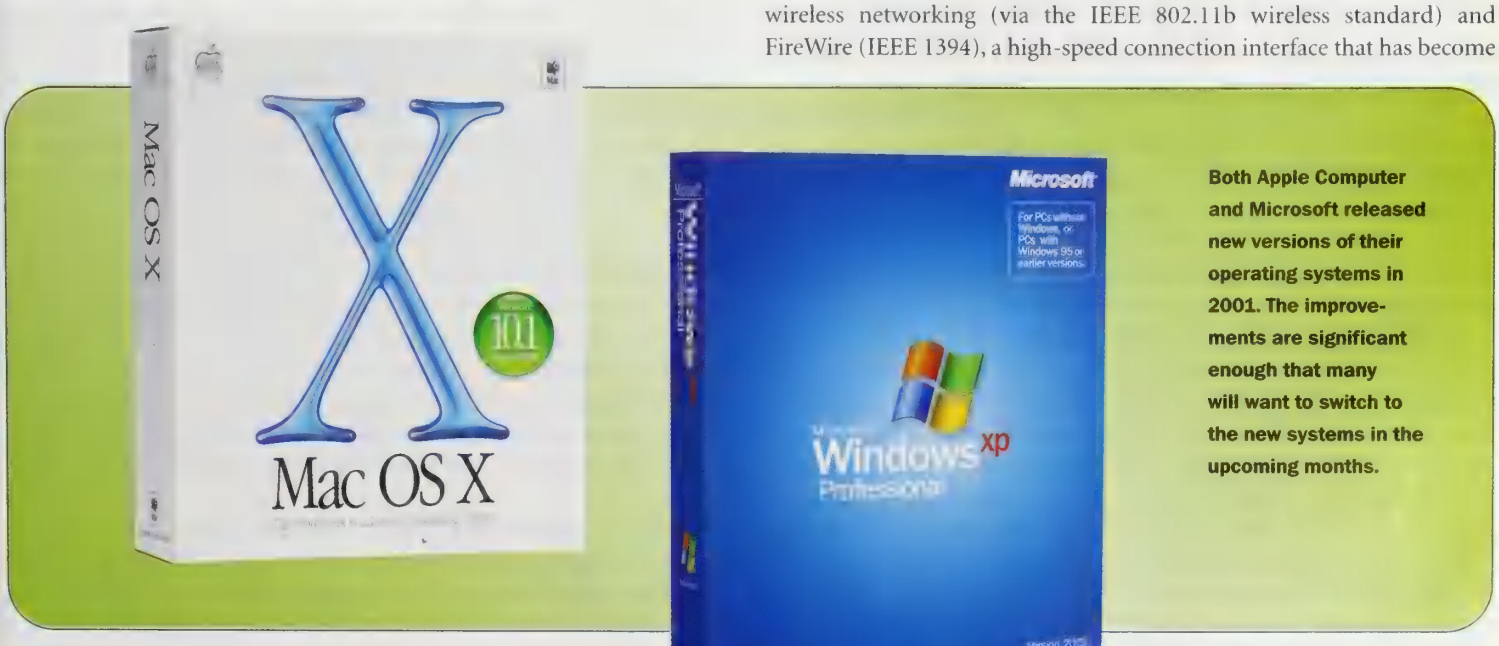
Louis B. Smith, Jr., AIA, is an architect practicing in Michigan. He was recently elected vice president of AIA's Huron Valley, Michigan, chapter.

The designers' machine

Ever since its introduction in 1984, the Macintosh has proved itself to be a viable business computer. Apple introduced to the computing world a graphic user interface that was so smooth and effective that its success prompted Microsoft to develop its popular Windows operating system. The Mac's simplicity and ease of use—especially with regard to hardware connection, networking, and Internet connectivity—gained it acceptance in many homes and schools. For business use, the graphic appeal of the Mac made the platform a favorite in the publishing, advertising, and graphic arts industries. Creative people in other fields, especially music and architecture, were also attracted by these same characteristics.

THE MAC'S GRAPHIC CAPABILITIES MADE IT POPULAR AMONG PUBLISHERS, ADVERTISING AGENCIES, AND DESIGNERS.

Ironically, many of the features that have made the Mac appealing have also compromised its market share. As a market leader, Apple has created innovations that have later stimulated or bolstered the market for PC hardware and software. The most recent of these efforts are AirPort wireless networking (via the IEEE 802.11b wireless standard) and FireWire (IEEE 1394), a high-speed connection interface that has become



Both Apple Computer and Microsoft released new versions of their operating systems in 2001. The improvements are significant enough that many will want to switch to the new systems in the upcoming months.

IMAGES COURTESY APPLE COMPUTER (LEFT) AND MICROSOFT (RIGHT)





The award-winning 5th Street Family Housing project in Santa Monica, California, (left) was designed by Koning Eizenberg Architecture on Macintosh computers using PowerCADD software. The image shown below was modified using Adobe Illustrator.

standard across both platforms. In a similar fashion, graphics packages created originally for the Macintosh, including Adobe Photoshop and PageMaker, are now available on both platforms.

Bridging the differences

The hardware and software compatibility issues that once plagued users trying to integrate Macs and PCs aren't as complex or burdensome as they were several years ago. New hardware design and connectivity devices, along with software that's been developed for both Macs and PCs, has eliminated many of the headaches of moving data from one platform to another. However, firms that attempt to use both Macs and PCs should plan for adequate technical support for both systems, and for the connection and compatibility issues that may arise.

THE TYPE OF CAD SOFTWARE A FIRM USES PLAYS A MAJOR ROLE IN DECIDING WHETHER TO SUPPORT MACS OR PCS.

Perhaps most critical for architecture firms that may want to use Macs is the selection and availability of CAD software. Market leader AutoDesk's AutoCAD and Bentley's MicroStation are both compatible only with PCs, and newcomer Revit's 3D CAD program is also being developed, for the moment, only for PCs. Graphisoft's ArchiCAD and Nemetschek's VectorWorks Architect (VWA) both have Mac-compatible versions; the latest release of ArchiCAD, version 7.0, runs natively on OS X. As many architects will attest to, moving files created in one program across platforms or between programs can prove tricky.

Other types of software, particularly those for general productivity such as Microsoft Office and desktop publishing programs offered by Adobe Software and others, are fully cross-platform operable and present few troubles when moving files between the Mac and PC platforms. Some of AIA's digital products are moving to platform-neutral formats, as well—most notably the popular *Handbook of Professional Practice*, which is now offered in Acrobat's portable document file (PDF) format. A cross-platform version of the AIA Electronic Documents set is slated for release next year.

Firms of various sizes report different levels of experience and satisfaction with using the Mac platform. Examining their stories sheds light on the ways architects are utilizing Macs for design or practice management functions.

A visual, stylish presence

Koning Eizenberg Architecture, a 19-person design-oriented firm in Santa Monica, California, has been using Macs since the mid-1980s when the platform first became viable for business use. Hank Koning, a firm principal, states that this was primarily because "the Macintosh's visual interface was more comfortable for visually oriented thinkers. Architects tend to be visually and not verbally oriented—and so the system fit the firm well."

At this firm, Macs were used mostly for administrative tasks and general office productivity. Eventually the firm began using a CAD program called PowerCADD, made by Engineered Software. "It came closest to producing the graphic qualities we wanted. Lines and line weights were presented correctly on the screen and when printed. It looked more refined, like hand drafting," says Koning. The firm still uses PowerCADD, even though it is strictly a 2D program; Koning says, "It's simple, quick, and handles most of the day-to-day production work we do as architects. Still, we are looking at whether it is time to move to an integrated 2D/3D program like VectorWorks Architect or ArchiCAD," he says. Because both of these packages are bi-platform compatible, it makes the need to keep using Macs less pressing.

Koning noted that in recent years the firm has also adopted a

number of presentation and production software packages, including FormZ from Autodessys for 3D modeling. The firm also maintains a PC in their office to ease the transfer of files with consultants and to run PC software. They don't use emulation programs such as Virtual PC (see "Mind the Gap," right) because their modestly powered PC operates faster than an emulator on a high-end Mac. They have suffered no real compatibility problems between Macs and PCs with documents other than CAD files.

Now the firm is reassessing its commitment to the Mac platform. Koning states, "We have an affinity for Apple because it pushes the envelope of computer design. Machines like the now-discontinued Cube and the current Powerbook not only worked well, but made a stylish statement." He likes the progressive image this presents to clients. When asked about the switch to OS X, Koning responded, "Each operating-system upgrade has been relatively easy, but the improvements have been incremental. Each works only a little better than the last [version]." The firm's policy is to wait to see how others fare with the upgrade before adopting it themselves. Still, and more significantly, the Windows interface has come fairly close to operating in the smooth manner that attracted Koning to Macs in the first place. "If I were starting from scratch right now, I might not be so quick to pick the Macintosh," he admits. "It depends on price, performance, software choices, and the like. But I wouldn't automatically rule it out either." Like many architects considering the adoption of new tools, Koning is concerned that a switch from Macs to PCs will result in a period of lower productivity due to training time and costs.

Software-driven changes

Not every firm is conflicted about their computing choices. Bohlin Cywinski Jackson, a 90-person firm with three offices in Pennsylvania, along with offices in Seattle and Berkeley, California, are moving deliberately away from using Macs. Doug Speckhard, the firm's corporate IT manager, says, "The decision wasn't based on the inherent value of either platform, but rather on the firm's decision to continue using Bentley's MicroStation as the primary CAD platform." (Bentley Systems stopped producing Mac-compatible versions of MicroStation in 1998). This has forced the firm to move more of its CAD workstations to PCs to gain the benefits of the most current CAD technology.

MANY FIRMS USE MACS FOR SPECIFIC TASKS SUCH AS PREPARING MARKETING MATERIALS OR DIGITAL 3D MODELS.

Speckhard notes that the firm began using Macs in part because, "at the time, [we had] few technical problems with the machines. The software was less complex, and users could provide their own IT support." As the firm grew, the number and complexity of its computer systems increased. "More non-Mac users joined the firm, as well, and we have had to hire people to provide tech support at least half of their working hours as we grew," he noted. It is clear, though, that purchase and utilization policies for the firm vary by location. The firm's Wilkes-Barre, Pennsylvania, and Philadelphia offices use Macs almost exclusively, whereas its Pittsburgh and Seattle offices are both dominated by PCs (over 75 percent), and its Berkeley office is evenly split.

A solution for going solo

Another firm with clarity on its platform strategy is Marc A. Lindsell, Architect, of San Francisco. Lindsell is a solo practitioner who specializes in residential and small commercial work. He switched to the Mac platform about three years ago and has been very happy with the change. "Before switching to the Mac, I used to struggle with AutoCAD and the blue screen of death," he says. "Now I use ArchiCAD, and I sometimes find myself sitting there working and laughing out loud at how easy it is. I don't regret switching at all." He particularly likes ArchiCAD's 2D/3D integration, which gives him the seamless kind of experience in production that he was seeking. "ArchiCAD works the way an architect thinks," he says. "If I place a window in a wall on a plan, and then I decide to adjust its position when I see it in elevation, I want the software to change the plan for me automatically when I change the elevation."

Lindsell also uses his Mac for accounting purposes and is switching from Quickbooks Pro (for which Intuit is no longer providing Macintosh upgrades) to MYOB Account Edge, an accounting package that runs natively on OS X. Like many Mac users interviewed for this article, he uses the Microsoft Office software suite for general office productivity.

Lindsell reports that he will be upgrading to OS X soon, and he also makes extensive use of Apple's iTools, a service package available free with purchase of OS 9 or OS X when the purchase is registered on Apple's Web site. The package includes hard-drive space on Apple's server, a Web site with a public folder, a free e-mail account, and consumer-oriented services such as electronic greeting cards. These services offer benefits with little investment, particularly for solo practitioners whose resources for marketing and technical support are limited. Lindsell maintains an iTools Web page that allows him, as a Web novice, to post photos, renderings, and plans on his site for his clients to view. He does this himself without having to know HTML or hire outside IT support. "My residential clients often have family in a different part of the country," he explains. "My Web sites allow them to see the progress of a project being

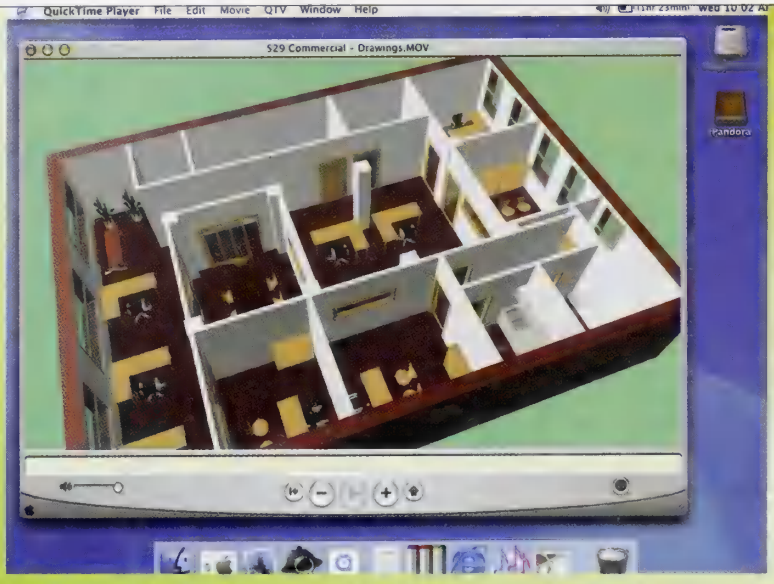
MIND THE GAP: Solutions for working across the Mac and PC platforms

A variety of software and hardware products help Macs and PCs work together seamlessly. An emulation program called Virtual PC, from Connectix, allows a Macintosh G3 or higher to run Windows 95/98/ME/NT and 2000, as well as the Linux operating system. This gives Mac users the flexibility to run programs designed only for PCs. Architects surveyed for this article have found this setup useful for saving AutoCAD DWG files and then later opening them in VectorWorks Architect, and also for running the digital version of Architectural Graphics Standards and opening manufacturers' product literature on CD.

For networked computers, Thursby Software makes an emulator called "Dave" that allows Macs to communicate easily with Windows-based networks, with little extra configuration necessary. If file transfers are the primary goal, a small shareware program for PCs called Slim FTP (file transfer protocol), from Whitsoft Development, allows a Mac with FTP software to upload, download, and configure new directories.

Apple provides an "idisk" with each copy of OS X, which lets users create a 20-megabyte public FTP site on an Apple server. With system 10.0.1, users can manage and upload to the server from Windows platforms as well. However, the FTP account must be originated on a Mac.

Moving data between platforms has been simplified over the past several years by numerous hardware and software improvements. Simple file sharing between dual-platform products, including most Microsoft and Adobe software, is usually transparent as long as both platforms are using the same generation of software. Many Macs are also now equipped with rewritable (CD-RW) drives that read and record CDs from both platforms. ***LBS***



In the Macintosh desktop environment, point-and-click buttons (bottom of screen) open applications and utilities. Here, an architect is using Apple's QuickTime to create a video of an ongoing design project.

designed or built." His clients appreciate seeing virtual-reality tours of his ongoing projects, which he creates using Apple's Quicktime technology (see image above). Using his Mac and iTools, Lindsell feels he has achieved a graphic presence that's on par with that offered by larger firms with more resources.

A niche for marketing

For various reasons, many firms remain committed to using both the Mac and PC platforms. Amy McLellan, marketing coordinator of Fishbeck Thompson, Carr and Huber (FTCH), reports that the 265-person firm, based in Grand Rapids, Michigan, uses Macs only in their marketing department. McLellan believes the graphic capabilities of the Mac are better matched for creating high-quality publications quickly and easily. "We use Quark Xpress and Adobe Photoshop and Illustrator to create a company newsletter, invitations, promotional material, team charts, and other planning and marketing documents," she says. The decision to use Macs for marketing was largely based on how familiar people in the department were with the platform.

Bryan Swanson, a graphic designer at FTCH, comments that "while the platform differences are less important nowadays, the vendors we work with [printers, type houses] prefer Macs." But Swanson does report some problems with platform differences. "Annoying things come up—like not having the same fonts on each system, and minor networking problems between the PC and Mac versions of Microsoft Outlook." But McLellan is not concerned about minor glitches. "We team with firms all across the country, and we share graphics and files seamlessly," she says. "Basically, we can open anything on our Macs."

As platform differences between Macs and PCs have become easier to overcome, it's also less important for businesses to consider using only one type of machine. FTCH may in fact migrate away from Macs eventually because they don't run all of the software used by the firm, particularly some of the accounting and office productivity packages. Recently the firm gave PCs to people in the marketing department so they could use online time sheets and other corporate forms and files that are PC-based, including Microsoft Outlook.

Measured use for traditional skills

Rob Pfaffmann of Pfaffmann & Associates is clearly in favor of Macs, and his 12-person firm in Pittsburgh uses them exclusively. The firm's work is split between corporate work with a distinctly technological bent and urban design work with an emphasis on historic preservation. His firm produces reports and book-format documents as frequently as they do drawings and construction documents—and he feels that Macs are a better fit for this mix of work. Pfaffmann also believes that using Macs balances the experience of the firm's staff and is consistent with his vision of how work is carried out.

For reports and other text-and-graphic material, the firm uses Adobe's PageMaker, Photoshop, and Illustrator. For CAD and design work, the firm uses VWA along with FormZ for 3D modeling. For practice management, Pfaffmann uses two programs made for PCs—Quickbooks Pro and the AIA's electronic document software—and runs

THE TENTH GENERATION: Kicking the tires on Apple's new operating system

Test-driving OS X quickly leads to some conclusions about what to expect and what its useful features are. Expect a rich visual experience: Buttons pulse in light blue; semitransparent dialog boxes (called sheets) are context-sensitive, attached to the windows they relate to; drop shadows are everywhere. Expect speed: For day-to-day tasks, OS X used with a G4 Mac is as fast as any Pentium 4–class machine using Windows 2000. If you have a multiprocessor Mac, OS X may run even faster.

For newcomers to the Mac, OS X should be simple to learn and use. The stylish icons are easy to understand because of their detail and clarity, and the spatial relationships in the interface are made apparent by the motions and shadows of the icons and windows. Experienced Mac users, however, may have difficulty adjusting to the changes that OS X offers. The system handles applications and files that run on the OS 9 (Classic) system differently from those that run natively in OS X, which is initially confusing.

Historically, Apple operating systems have provided a great deal of backward compatibility with previous versions, but OS X does not offer as much flexibility in this regard. Networking of Macs remains easy, but the more extensive security measures added to OS X to make file sharing safer also makes access more limited.

The thousands of applications that were designed to run under Mac OS 9 will run in the so-called "Classic" environment of OS X, which allows a portion of the OS X environment to act as though it's a separate computer running the older operating system—much like an emulation program helps a Mac run PC software. The range of programs includes many packages used by architects and their collaborators, such as Dr. Beam, part of the Dr. Softare structural series, and the University of Oregon's Energy Scheming software for DOE-2 energy analysis. Unfortunately, this flexibility in mimicking OS 9 means that crash protection and active memory management, along with many other desirable features of OS X, will not run on the older system. On the upside, a software crash in the "Classic" environment can bring down other programs that use OS 9, while leaving other OS X applications unharmed and operating. ***LBS***

Web Resources for Architects Who Use the Macintosh

SITE NAME	ADDRESS	DESCRIPTION
ARCHITOSH	www.macnn.com	A site dedicated to news and information on the use of the Macintosh in architecture.
MADE4MAC	guide.apple.com/usindex.lasso	A searchable Apple product guide with listings for business, engineering, and architecture software and hardware from around the world.
APPLE CREATIVE	www.apple.com/creative/business	A site focusing on software and methodology for the business side of creative industries.
OS X	www.apple.com/macosx.	Information on the 1,400 products released or planned for release for the new Mac operating system.
MACINTOSH NEWS NETWORK	www.macnn.com	Daily updates of manufacturers' announcements of new Mac products, along with upgrades of existing products.
ACD SYSTEMS	www.acdsystems.com	Provides a useful digital-image viewer and media-asset-management (MAM) tool.
VECTORWORKS	www.nemetschek.net	Major CAD Vendor for Macintosh systems.
ARCHICAD	www.graphisoft.com	Major CAD Vendor for Macintosh systems.
ARTLANTIS	www.artlantis.com	Advanced third-party rendering engine that works with VectorWorks and ArchiCAD.
DESIGN WORKSHOP	www.artifice.com	3D modeling software, in free and professional versions.
FORM Z	www.autodessys.com	3D modeling software, with some working-drawing capability.

them on a Mac using Virtual PC, an emulator program. Pfaffmann especially likes the way that Macs can be used to create dynamic 2D presentations for his clients. "Drawings can be moved smoothly back and forth from VectorWorks Architect and Photoshop to Illustrator or PageMaker," he says.

As for upgrading to OS X, the firm does not anticipate doing so until there is a compelling reason, such as a client requirement or a major software upgrade. "It's not useful for the firm just yet," says Pfaffmann. Right now, few software packages the firm uses run natively under OS X, so there is little incentive to invest right away.

Beyond firms to practice changes

One of Apple's core directions is the close integration of multimedia technology. They hope to do for desktop video what they did for desktop publishing—take it out of the realm of skilled technical jockeys and make it an easy and worthwhile effort for everyone. Many Macs come equipped with iMovie video editing software, a beginning-user tool for making simple movies and videos. The program can also be downloaded free of charge from the iTools service center after creating an account. Apple also markets a professional-level editing program called Final Cut Pro, which is finding some acceptance in the television and film industries for intermediate-level video and audio editing tasks.

THE MAC'S MULTIMEDIA TOOLS MAKE IT A GOOD FIT FOR FIRMS THAT DEVELOP VIDEO PRESENTATIONS OF THEIR WORK.

Apple has been promoting its solutions for multimedia projects (iTools, iMovie, Final Cut Pro, and others) as affordable, high-quality products that require little user expertise to design and develop an effective system, and its machines are built for the task. The G4 processor includes an on-board parallel processing unit that is intended to speed up graphics processing, and OS X is written to take advantage of this computing power. Other lower-power Macs feature multiple processors that are needed to handle the extra hardware demands of multimedia technology.

Architects may find that Apple's tools are a good introduction to using and producing multimedia content. Ed Goldberg, AIA, who coordinates the industrial design program at Towson University in Maryland, thinks architects should be embracing this technology as a skill and a tool that will enrich their traditional practice. "I think this [is something that] excites my clients," he says. "Clients are used to seeing high-quality presentations on television and in shopping malls. If you present less than they expect, then your firm appears to be less skilled—even if it's a good-size firm." Goldberg sees architects using desktop video to document various aspects of a project, including construction, existing site conditions, site context, and the like. Of course, videos can also be used to create animations of projects themselves. "Eventually, all this can be put on streaming servers on the Web and be available in real time with no download necessary," says Goldberg.

However, Goldberg believes the multimedia solutions provided by Apple can also be assembled on PCs—often at a lower cost for a more powerful machine. "PCs are faster, and most come with CD-RW drives. DVD drives can be bought for a few hundred dollars more," he says. He also believes the power of Apple's digital video solutions cannot match the performance of third-party PCI cards for PCs, many of which include connections for analog equipment and multiple monitors, which Macs do not. PCs also present video work faster without having to render a transition, he says. But he admits that any serious solution for multimedia work will require high-speed Firewire devices, and that Apple is wise to include these in their systems.

All this points to an often-debated issue within the profession at large that transcends technology itself: Despite the significant advances and improvements in CAD, multimedia technology, and other electronic tools of the trade, many architects are still uneasy about the increasing digitization of their work. Opponents claim that hard-edge 3D models, flythroughs, and animations look too high-tech and distance them from their clients. Advocates, such as Goldberg, want architects to harness technology's power and possibilities to reclaim territory lost to engineers and other tech-savvy building professionals. This controversy is one that no single digital tool—however inexpensive and easy to use—can overcome.

The choices are many

Clearly, the Macintosh has its place in architecture firms large and small. It can be used for any function of practice: design, marketing, general office productivity, or management—or a combination of these tasks.

The broadest consideration firms have when selecting a platform is its sustainability—meaning how long the firm can reasonably expect its hardware and software to be used before upgrades and expensive technology reinvestments are necessary. Pfaffmann remarked that firms should "look carefully not just at the computer industry as a whole, but at the market that you participate in. The Mac is estimated to have only 5 percent of the computer market as a whole, but it's closer to 50 percent of the advertising and creative market, and my hunch is that it's close to 30 percent of the market for architects." The design-conscious have long shown an affinity for the Mac's look on their desktops.

Because both Macs and PCs are boasting radically new operating systems that will eventually require investment in new software—and because compatibility issues are less a concern than in the past, prior technology investment and training issues are not as important in selecting one platform over the other. But the preferences, needs, and long-term goals of users and others are important factors to consider. Macs may be a good fit for small firms with practitioners that handle all aspects of the practice, from design to accounting, because some say that technical support for Macs is less complicated and doesn't always require the full-time expertise of an IT specialist. Many younger practitioners will have used Macs in college and will be more adept with them as they enter the workforce. People who work in marketing or desktop publishing will also generally be more familiar with Macs than PCs because of the higher proportion of Macs used for those functions. A firm's preference for a particular CAD program will remain a major driver in selecting a platform, as well. And exchanging files with clients and collaborators such as structural engineers, code consultants, and others who have a preference for one platform over another will also influence the selection process.

But in the end, technical and cost issues aside, choosing Macs over PCs is often simply a matter of preference. And with the advent of new operating systems for both platforms, it pays to be prepared for the inevitable changes that lie ahead in the realm of computing. ■

A PIECE OF THE PIE: how big of a market share does Apple really have?

Apple Computer claims that the Macintosh maintains a 5 percent share in the U.S. computer market, but this number is hard to verify. Because Apple maintains tight control over the development of its hardware and operating systems, its systems often remain in use longer than their PC counterparts, so yearly sales figures probably underestimate the number of people and businesses using Macs. In addition, the sale of software that's made for both platforms is usually credited to the PC side of industry sales-tracking records, unless the manufacturer specializes in being a "Mac only" operation.



Apple states on its Web site that its market share "may not sound like a lot, but it is actually higher than BMW's and Mercedes-Benz's share of the automotive market." It appears Apple wants to cast the Mac as a niche product for computer users with special needs and discerning tastes.

Even so, it's obvious Apple wants its market share to grow. In an attempt to double their sales, the company is opening a series of retail outlets across the country. At press time, 16 stores were open; Apple hopes to have 25 online by the end of 2001. While some analysts think this strategy will boost sales, at least one—Arne Alsin of TheStreet.com, considers the retail store initiative to be a sign that Apple has come to "desperation time." But from a purely financial perspective, Apple remains strong for the moment. They have avoided the massive layoffs that have beset many PC makers, and they recently turned a quarterly profit, while PC manufacturers were suffering significant losses. ***LBS/DS***



A cutaway view of a residential project designed using Graphisoft's ArchiCAD software on the Macintosh. Several 3D views of the project were posted to an iTools Web site by the architect so that his client can review images online at any time.

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Digital Architect

Using Digital Tools to Expand and Enhance Services

By Jerry Laiserin, FAIA

Ask a group of architects about innovations in digital practice, and the answers will range from 3D modeling and real-time visualization to Internet-enabled project delivery and intranet-based practice management. However, a few of the savviest principals will wink knowingly and whisper the words "expanded services," followed by a steadfast refusal to divulge any details. A partner in one midsize firm that has enjoyed considerable success outside traditional design and document delivery insists that his firm "would lose our competitive advantage if we publicized how we do this."

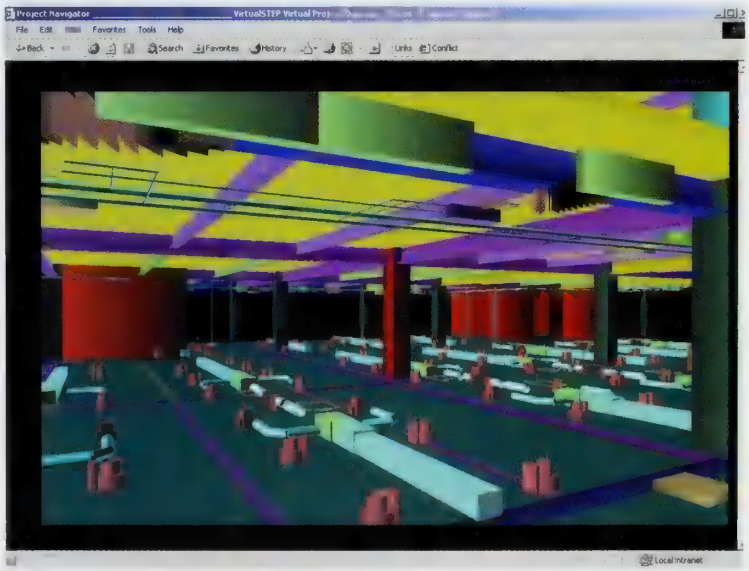
Easy translation of digital information among participants in building projects has opened the way for management consultants, space planners, value engineers, and a dozen other disciplines to offer computerized services to building owners on matters that were once the exclusive domain of architectural services. Some architects bemoan these encroachments, but others are harnessing digital tools and data to turn the tables on this trend. Simply put, they're using digital technology—just like some of their new competitors—to market, enhance, and expand their services to clients.

Although many architects engaged in these endeavors do not want their firms identified or the details of their offerings disclosed, it is possible to examine a range of opportunities for using digital tools to enhance traditional architectural practice and to identify tips and potential pitfalls.

Expanding upstream

Engaging clients before design services traditionally begin means having to move "upstream" in the flow of project information. One route to winning predesign services is analyzing or "mining" prior project histories for information that can help sell future work. One midsize practice that focuses on interior design maintains a lease-expiration database for spaces occupied by its clients and by others for whose work the firm had been short-listed. Two years before each lease expires, the database reminds a firm principal to send the client a proposal for a renew/move analysis. Many of these proposals result in paid consulting engagements, and some lead to new interiors commissions.

Another firm that specializes in progressive-care communities recognized an opportunity to capitalize on their expertise in this building type. The firm paired a retiring partner and a computer-savvy intern to assemble a space-planning and cost database based on project histories. These data provide the basis for predesign project-planning services that the firm often sells to clients independent of any design work. Other firms with specialties in medical facilities or K–12 schools have turned their efficiency in digitally processing and expediting regulatory documents into client support services for obtaining necessary project authorizations. A few architects with business degrees use spreadsheets to integrate financial pro forma analyses with zoning envelope calculations—a skill prized by developers of speculative commercial, residential, or retail projects.



Digital technology enhances the profitable reuse of design data for services such as construction management and design-build.

Enhancing design

Digital technology can enlarge the scope of conventional design services, as well. In a project for the Greater London Authority (GLA), Foster and Partners teamed with Arup Acoustics to create digital visualizations using software developed by Arup to predict speakers' intelligibility in a proposed design for GLA's new council chamber. Frank Gehry, FAIA, whose firm employs advanced digital techniques for design documentation and project delivery, designed and analyzed the convoluted skin of the Disney Concert Hall in Los Angeles using CATIA software. Besides its 3D-modeling capabilities, CATIA enabled Gehry to balance budget and design considerations while selecting the best combination of variously priced straight, curved, and compound-curved stone blocks for the facade. Although many architects fear value engineering as an after-the-fact discipline that devalues design, digitally adept designers use software to design value into their projects from the beginning.

"Architects are increasingly sought after for their abilities not just to be creative and knowledgeable, but also to be strategic," says Sarah Lynn Garrett, AIA, director of the architectural project management program and assistant professor of architecture at Portland State University in Oregon. Garrett believes that "the way architects think" makes them natural for what

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

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she calls "smart architecture—managing all the services and value of a full project life cycle, including economic analysis of buildings and return on investment." In her consulting practice, Garrett relies on spreadsheets she developed herself in Microsoft Excel to perform project pro forma analyses, and on schedule and resource programs such as Primavera Project Planner and Vité SimVision, to help owners manage risk and improve outcomes.

Garrett believes construction-phase services are especially important for architects to master because, as her research shows, the lack of information transfer at the bidding-and-contract handoff is the primary marker for project failure. One reason owners are taking more interest in design-build and other accelerated methods of project delivery is because project teams provide digital support for better information flow from design to construction. Architects engaged in designer-led design-build projects rely heavily on digital coordination of design and construction documents, such as CAD files, construction schedules, and other information.

Expanding downstream

Most of a building's total life-cycle cost is incurred long after traditional architectural services are complete. Maintenance, repair, and operations costs (MRO), plus the cost of occupant moves and changes, exceed original construction costs many times over. Digital information created by the design team plays a crucial role in managing life-cycle costs—yet traditional design practice and "instruments of service" fail to capture any of this value.

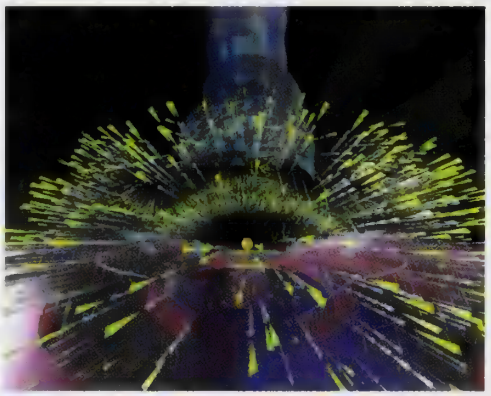
Some architects, like Robert Visser, AIA, of Visser Software Services in New York, use their digital expertise to provide facility-management support services to clients such as American Express, JP Morgan Chase, Lehman Brothers, and Morgan Stanley. Other firms continue to maintain and manage facility data, such as drawings, for former design clients. For example, one firm with a reputation for rigorous in-house AutoCAD standards provides drawing quality-management services (conformity to layer guidelines, drawing file setup, and so forth) for all a client's construction documents, including those prepared by competing designers.

During the heyday of high-growth dot-com startups, a few California architects experimented with providing design services to these new-economy clients for a nominal up-front fee plus recurring fees for the use of digital design data over the life of the building. This business model was adapted from heavy construction engineering outfits such as Bechtel or Black & Veatch, who have long offered such services to their clients in process manufacturing industries. While an appealing model, architects should be aware of the long-term stability and creditworthiness of clients to whom they offer such services, so they're not saddled with debt or worthless contracts from failed companies.

Tips and traps

Jamie Frankel, Esq., a partner in the Construction Industry Practice Group (CIPG) of international law firm Buchanan Ingersoll, observes that the incremental cost of providing expanded services by digital means can be extremely low, especially for firms that are repurposing existing digital data from prior projects. The risk profile of predesign and post-occupancy services also is favorably low for insurance-rating purposes.

Some firms might consider spinning nontraditional services into a business entity distinct from the professional service firm. Such a move could extend firm ownership to nonarchitects such as software programmers or technology managers. However, CIPG cautions that operating as a general business poses uninsured risks that most architecture firms are not prepared to address. The key question is whether expanded services are covered by the professional liability policy or can be covered by endorsement. If expanded services don't represent a large proportion of total revenue—a rule of thumb is one third or less—keeping all services in the professional firm, under its liability coverage, may be the best course.



Arup engineers and Foster and Partners collaborated to create a 3D digital acoustical analysis of the new Greater London Council chamber.

"Even the most appealing digitally driven opportunity for enhanced or expanded services presents new practice-management issues," says Ralph Steinglass, FAIA, president of Teambuilders, a New York–based organizational consulting firm. Steinglass, who helps firms manage change and improve productivity, adds, "In our riskier times, there still is much to be learned about safeguarding our records, providing adequate security, and making contingency plans for alternate means of communication in times of crisis. Some of us can still draw or redraw plans by hand, but how do you reconstruct a database without a computer?" Providing expanded services by digital methods entails creating nontraditional deliverables in digital form, such as spreadsheets, reports, and presentations, which requires greater investment in backup procedures and data protection.

Steinglass has seen several firms expand into new markets through network technology that successfully delivers national, firm-wide expertise to local and regional clients and projects without the need for full-blown local offices. But, as many businesses have found, such "virtual" operation has its drawbacks. "The disadvantage is a depersonalization of the workplace—and of the work itself," he says. "Lack of personal contact among remote team members can impair the synergy that comes from working together physically." Similarly, a few large firms create project Web sites, which they market to clients as additional services. Steinglass says, "While project Web sites facilitate coordination of information and allow instant sharing of files and job-progress images, they don't solve the more complex human relationship issues on projects and may accelerate tendencies to make decisions reactively and engage in confrontational communication styles."

Although using digital tools to enhance traditional practice or offer new services affords firms a chance to increase their revenues and expand their skills, it's wise to consider how these tools serve the needs of both clients and staffers. Digital products and services themselves are no substitute for sound thinking, good design, or adequate business planning. As Garrett says, "The tools we use are only as good as our understanding of the input and output. There is still no program that simulates the critical judgment of a well-trained architect." ■

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Digital Product Reviews

Tools for accounting, modeling, and image management

By Jerry Laiserin, FAIA

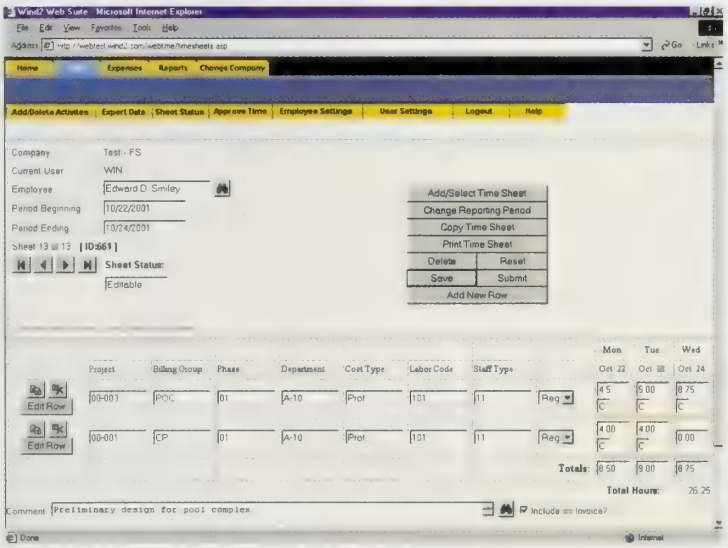
Wind2 Financial Management System

Wind2 Software

Architects may be completely at ease revisiting interventions or contextualizing gestalts, but many are dumbstruck at the mere mention of debits and credits. Yet accounting is essential to running a design practice. Besides the financial statements required by bankers and the government, architects need tools to transform time-sheet data into accurate invoices and to monitor project progress against the available fee. Solo practitioners and small firms can accomplish these tasks with generic small-business software such as QuickBooks Pro from Intuit, but larger firms need more elaborate software designed to account for project-based professional services. In recent years, mergers among software vendors have narrowed the choices for architects, with Deltek Systems acquiring many of its former competitors. Among the survivors, Wind2 Software stands as a long-term innovator, initially bringing A/E accounting to Windows, then to the Web, and now to the arena of professional services automation, which integrates project and practice management [RECORD, August 2001, pages 137–138].

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

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System requirements: Pentium PC, Windows 98/NT4/2000.

Wind2 Software, 1825 Sharp Point Drive, Fort Collins, Colo. 80525; 800/779-4632; www.wind2.com.

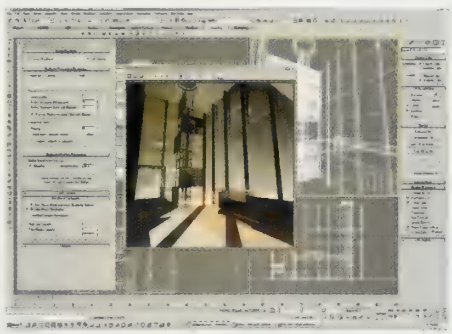
3D Studio Viz 4

Discreet (division of Autodesk)

Architects have always experimented with techniques and media for representing design, from the huge wood-and-plaster models of Renaissance churches to the latest digital simulations. Today, digital model construction breaks down into several component programs. Modeling itself is unadorned 3D computer representation, whether derived from CAD drawings or constructed from scratch. Rendering or visualization adds lighting effects and material textures, and animation adds motion. Many programs specialize in one of these functions, but few combine modeling, CAD file import, rendering, visualization, and animation in a single package. Add top-notch simulation of lighting behavior to the desiderata, and the list of programs is reduced to one: 3D Studio Viz, version 4, from the Discreet division of Autodesk.

Viz started out as a lightweight version of 3D Studio Max, a high-end program used for cinematic special effects. In successive releases, Viz sprouted more features of its big sibling, such as support for plug-in effects, and also extended its CAD compatibility. Viz 4 supports round-trip file exchange with Autodesk's AutoCAD 2002, Architectural Desktop 3.3, and the forthcoming Architectural Studio. This makes Viz 4 useful for design exploration and team communication during design, not just after-the-fact presentation.

The big news in Viz 4 is its elegantly done (but awkwardly named) integrated global illumination rendering technology. Discreet has developed a new approach to calculating accurate representations of lighting behavior that can deliver, in five minutes, a level of rendering quality that previously took seven hours of computation. The new technique is not only faster, more accurate, and more natural looking than Lightscape, Discreet's previous lighting solution [RECORD, December 1999, page 43], but fully integrated into Viz 4 so that most models and views can skip the preprocessing



SEEING THE LIGHT: 3D Studio Viz 4.

required with Lightscape. It also leaves architects free to design with light without the constraint of having to program lighting software. With Autodesk's iDrop functionality for dragging photometrically correct luminaire data models from manufacturers' Web sites into design models, Viz 4 becomes a truly enlightening experience.

System requirements: Pentium III or better (certain Intel P4 chips will be optimized for Max and Viz rendering), Windows NT4.0/2000 professional, 512MB RAM (1–2GB RAM recommended).

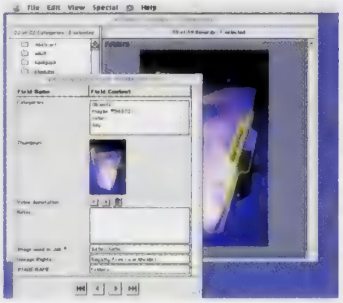
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Cumulus 5 Digital Asset Management System
Canto Software

As architects computerize their practices, digital image files are replacing paper drawings, photographs, and slides [RECORD, March 2001, pages 164–170]. Some digital files are scanned versions of print or film media, while others are digital originals direct from software or digital cameras. With minor tweaking, the same image can be used on the Web, in a computerized slide show, and as a full-color tear sheet on glossy stock. Given this versatility, it's not surprising that even a small firm can accumulate hundreds or thousands of image files.

Like any asset, digital image libraries cost money to create but pay their way the more they are used. However, opening image files individually to find the right one is slow and frustrating. Descriptive file names (such as "bilbao-sunset") speed the process, but what's really needed is the ability to save, search, and index images using other categories, such as project type, date, and location. Specialized software for digital asset management (DAM) offers these options; one of the most popular DAM programs is Cumulus, from Canto Software.

Cumulus accepts over 110 image formats, indexes and stores



PICTURE THIS: Cumulus 5.

the files in a proprietary high-speed database optimized for image searching, and allows users to add metadata—searchable descriptions and keywords—to each image. For rapid browsing, Cumulus shows thumbnail views of stored images and allows users to drag-and-drop images directly into other software, such as Photoshop, QuarkXPress, HTML, Microsoft PowerPoint, and Apple QuickTime.

Available in single-user, workgroup (networked), and enterprise (customizable) versions, investment in Cumulus quickly pays off by making storage and retrieval of digital images faster, easier, and less expensive. Highly recommended.

System requirements (single user): Macintosh PowerPC, System 7.1.2 or better, or PowerMac G4, OS 9.1 or better, 64MB RAM; or Pentium PC (P90 minimum, PIII850 preferred), Windows 95/98/ME/NT4/2000, 128MB RAM. Workgroup and enterprise versions have similar requirements on client PCs, and require multi-user operating systems (OS/X, Windows NT/2000, or UNIX) for the host PC.

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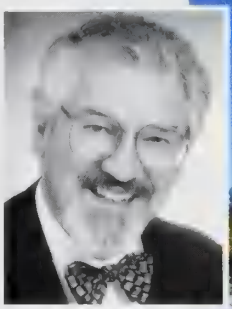
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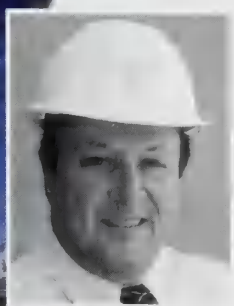


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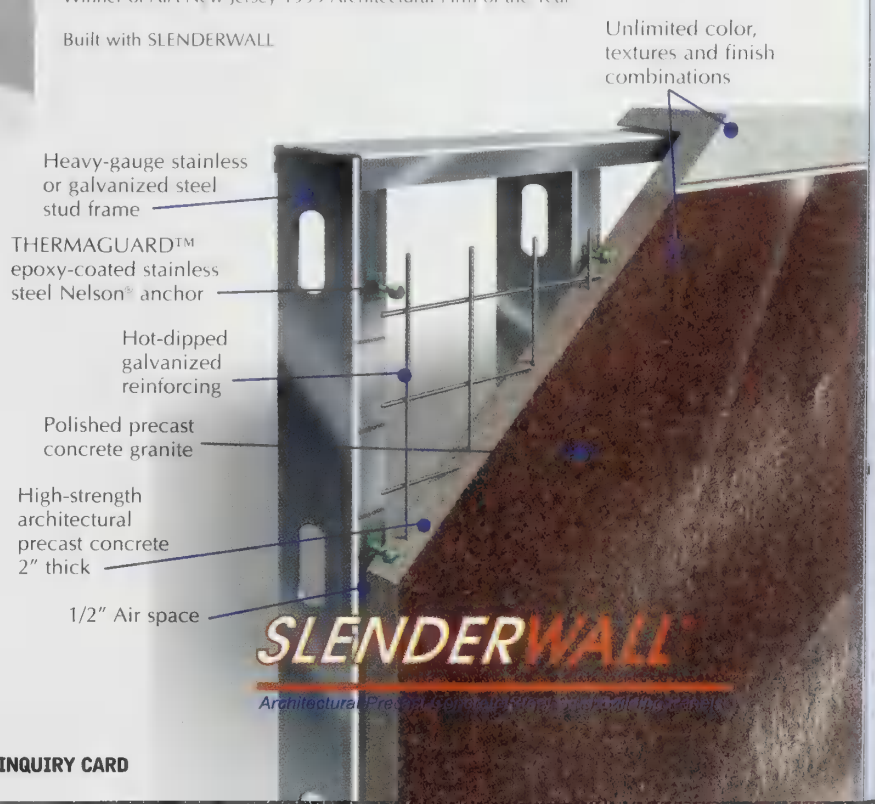




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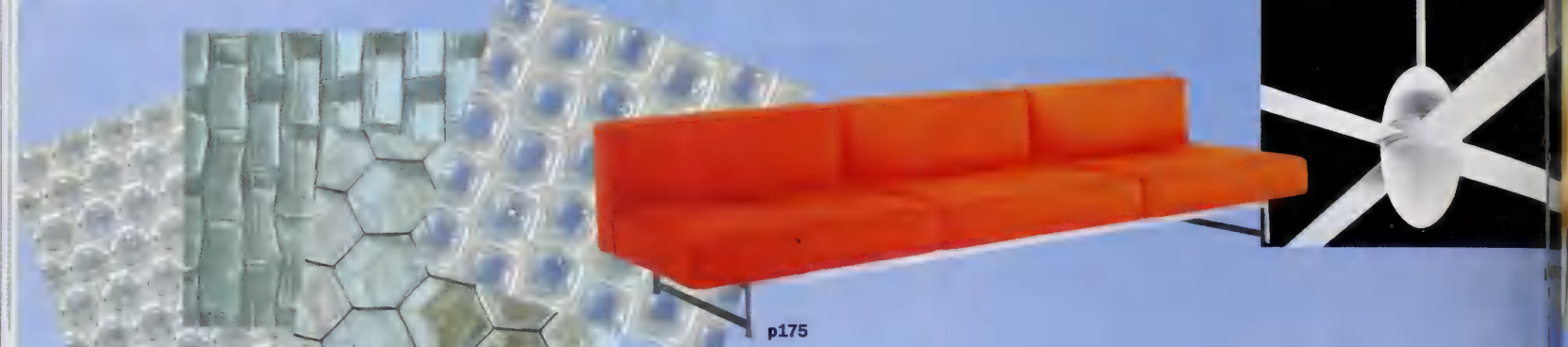
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CIRCLE 39 ON INQUIRY CARD



p175

p163

Product Reports



p159



p153

To quote the Victorian designer William Morris, an architect should never specify a product "they do not know to be useful, or believe to be beautiful." This year I scouted a variety of trade shows—from a furniture fair in Stockholm to a lighting show in Las Vegas—with the goal of finding products that are not only well designed, but functional. I'm always excited when I get a chance to test the product myself—you never know how easily adjustable that sexy ergonomic chair truly is until you sit in it yourself and give it a try. Nothing replaces firsthand experience.

This is also the challenge for our Product Report's jury each year: They need to analyze hundreds of submissions based on text and pictures, with only the occasional personal experience. This year, for the first time, we invited manufacturers to submit small samples of their products along with their submissions, so our jury could feel some of the fabrics, tiles, glass, metals, and other materials for themselves. This direct contact became particularly important in a year when manufacturers developed products with several new material combinations and technologies, including hard surfaces made of textile and resin, insulated glass with woven metal, and wallcoverings made of wood pulp and recyclable polyester.

New techniques emerged as well this year, especially in the solid-surfacing arena: Corian's Bas Relief 2-D modeling process produces new textures of varied depth, while Avonite's Glass Series replicates the translucency and texture of natural glass. One caveat: Although there were a few new notable "green" products introduced this year, our jury was surprised at the lack of products entered in the eco-realm.

What do you think?

Do you have an opinion about what was the best new building product of 2001? Check out the Product Reports 2001 poll on our Web site this month to comment on the products that did or did not make it into our pages this year. **www.architecturalrecord.com**



p169

2001



p175

2001 Editor's Picks

Although we hate to play favorites, readers often ask which products stood out during the year, and why. The 10 products featured as Editor's Picks (next page) made the cut because they offer solutions for architects while also strongly proclaiming the object's aesthetic and utility. Here is a brief selection of our choices:

The Go chair, claimed to be the first furnishing ever designed in magnesium, recalls a giraffe—it's elegant and leggy, but also solid and strong. The spare, skeletal looking Cachet chair features a balanced action rocker mechanism that works like a tendon to allow you to gently recline as the seat flexes. Pilkington's Activ self-cleaning glass uses the power of the sun to maintain clean windows, saving owners time and money, while palm wood contributes a new addition to sustainable woods. Oxygen modular carpet, created by Gensler, allows designers to compose their own graphic art on the floor, and MesoOptics is an incredibly researched new holographic lighting material. Ergo Discus uses daylight sensors to put light only where it is needed; sok recirculates water as it spills off the edge of the tub; i ceilings shifts the role of the ceiling tile from an acoustical to a technological tool; and, last but not least, Aero is a flexible corrugated metal finish that opens up an array of design possibilities. —Rita F. Catinella

144 Editor's Picks
147 General Data
151 Sitework, Concrete & Masonry
158 Metals, Woods & Plastics
157 Thermal & Moisture Protection
159 Doors & Windows
163 Finishes
169 Specialties
171 Equipment
173 Furnishings
179 Special Construction & Conveying Systems
181 Mechanical
185 Electrical

Product Reports 2001 Jury

Royce Epstein (seated) is an associate and FF&E specialist for Hillier. Epstein manages the firm's Resource Center in Philadelphia and provides expertise on furniture and finishes for projects and clients firmwide. Epstein also teaches at Moore College of Art and Design and is the national president of the Resource Directors Association.

Martin Munter, AIA, CCS, (standing, far right) is a registered architect and certified construction specifier. Since joining HLW International LLP in 1999, he has researched building systems, materials, and products, and prepared specifications and project manuals. He is based in New York.

Stephen D. Empie, AIA, CSI, CCCA, (standing, left of center) is an associate vice president at RTKL Associates in Baltimore. Empie serves as project manager on a wide range of RTKL's technical and corporate office projects. His responsibilities include coordinating documentation to ensure that design intent is successfully maintained and overseeing the allocation of resources. Empie joined RTKL in 1973 and was promoted to associate V.P. in 1986.

David W. Altenhofen, AIA, CSI, CCS (standing, far left) is an associate and chief of architectural technology at Kling Lindquist in Philadelphia. Altenhofen's expertise includes waterproofing, roofing, masonry, precast concrete, curtain walls, window systems, sealants, coatings, flashing, testing and inspection, building codes, UL and FM requirements, ADA, specifications, contracts, construction law, risk management, forensics, and sustainable designs.

Katherine Chia (standing, right of center) earned her M. Arch. degree from M.I.T in 1991. She currently serves on the board of trustees of Amherst College, where she earned her B.A. Prior to founding Desai/Chia Studio in New York City, she worked at Maya Lin Studio and Prentice & Chan, Ohlhausen Architects. Chia is a registered architect in the state of New York.

Senior editors Sara Hart, Charles Linn, AIA, and Deborah Snoonian, P.E., and contributing editors Jerry Laiserin, FAIA, and William Weathersby, Jr., also helped in the judging.



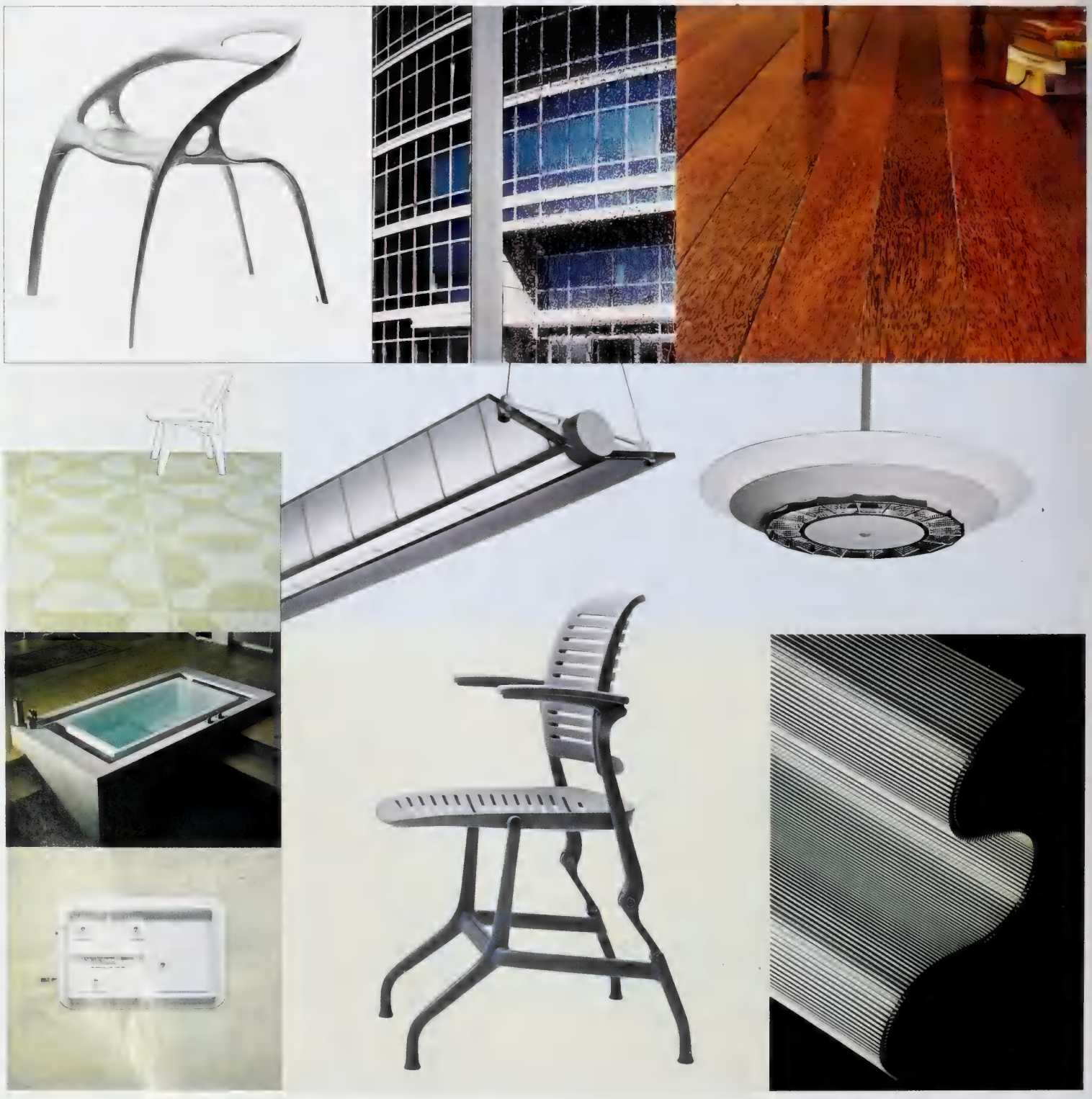
ALL JURY PHOTOGRAPHY: © ANDRE SOUROUJON



Editor's Picks

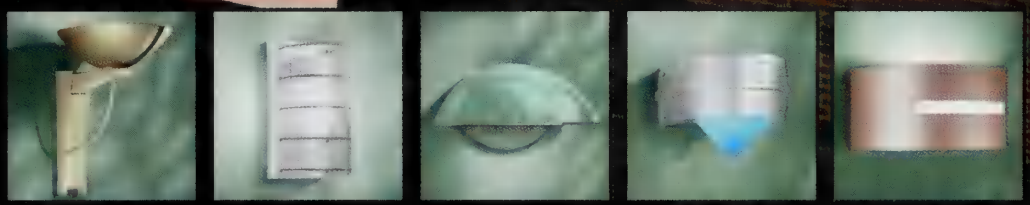
The ten products below, in no particular order, are the Editor's Picks for 2001. The preceding page outlines the essence of why they stood out from the hundreds of products introduced this year. I hope that in the following pages you find the product solutions that you have been searching for.—Rita F. Catinella

LEFT TO RIGHT, TOP TO BOTTOM:
Go Chair, Bernhardt Design, page 173; Activ Self-Cleaning Glass, Pilkington, page 159; Palm Wood, Smith & Fong Plyboo, page 164; Oxygen, Milliken Carpet, page 163; MesoOptics, Ledalite, page 185; Ergolight Discus, Ledalite, page 185; Sok Overflowing Bath, Kohler, page 179; Cachet Chair, Steelcase, page 175; Aero, Forms+Surfaces, page 153; i Ceilings, Armstrong, page 164.



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6th CENTURY SUBSTRATE

Project: The Pyramids of Chichen Itza
Designer: Mayan - Unknown
Product: Handhewn Stone

Probably founded by the Mayan tribe of Itza in 514 A.D., Chichen Itza was taken over by the Toltecs around 900 and flourished until around 1200, when it was abandoned. The most notable pyramid is El Castillo, rising to a height of 100 feet with staircases on four sides leading up to the temple of Kukulcan at the top.

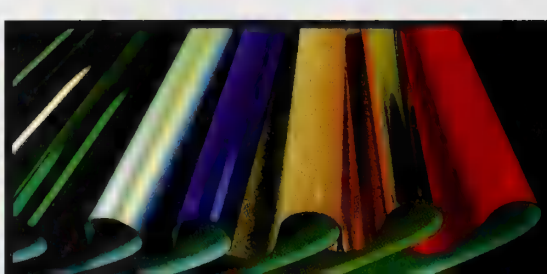
21ST CENTURY SUBSTRATE

Project: Janeway Children's Health & Rehabilitation Center, Canada
Architect: Health Care Consultants
Fabricator: Vicwest, Canada
Product: ALPOLIC/fr Custom Champagne Metallic

This six-story, 140,000-square-foot building was clad with ALPOLIC/fr in Custom Champagne Metallic. The architect purposefully selected the dry gasketed aluminum composite panel system for its simplicity in attachment. He selected the custom color to give the building a crisp, fresh, colorful and sharp profile in its surrounding environment.



In the 16th century, early Mayan builders utilized the very latest in materials and techniques to achieve their civilization's most creative creation. In the 21st century, ALPOLIC® prides itself in being a leader in innovative technology, taking aluminum composite materials in new directions. In fact, we're the leader in offering new and innovative products that can help you realize your visionary designs. Utilizing the solvent-soluble fluoropolymer resin Lumiflon® developed by Asahi Glass in 1982, ALPOLIC® created a patented coating process with PPG/MEGAFLON®, a high-performance fluorocarbon, as our primary paint finish. We were the first to offer a virtually endless palette of colors limited only by a designer's vision. Today, we remain on the cutting edge of substrates with such unique products as ALPOLIC STONE SERIES®, ALPOLIC A-LOOK®, Steel, Stainless Steel, Copper, and Titanium finishes. When you have a vision for the 21st Century, create your masterpiece with ALPOLIC products.



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CIRCLE 41 ON INQUIRY CARD

General Data

Computer software • Computer systems • Design office equipment & materials • Electronic literature • Web-based tools



Intelligent design requires intelligent software objects based on real building products. ZOOM GDL marks an important step toward filling that need. —JERRY LAISERIN, FAIA

Object modeling

Using classic design tools such as extrusion, piping, and curved surfaces, Zoom GDL 1.0.1 users can create an exhaustive range of architectural elements, including such complex objects as free-shape roofs, tensile structures, elaborate windows, and soft furniture. 800/452-9241. Abvent North America, Montreal, Quebec. **CIRCLE 200**

Green information

The 362-page *GreenSpec Product Directory* is a guide by the publishers of *Environmental Building News*. Comprehensive information can be found on more than 1,500 environmental products. The directory is organized by the industry-standard 16-division CSI MasterSpec system. 800/861-0954. BuildingGreen, Brattleboro, Vt. **CIRCLE 201**

Tyke-size cad designers

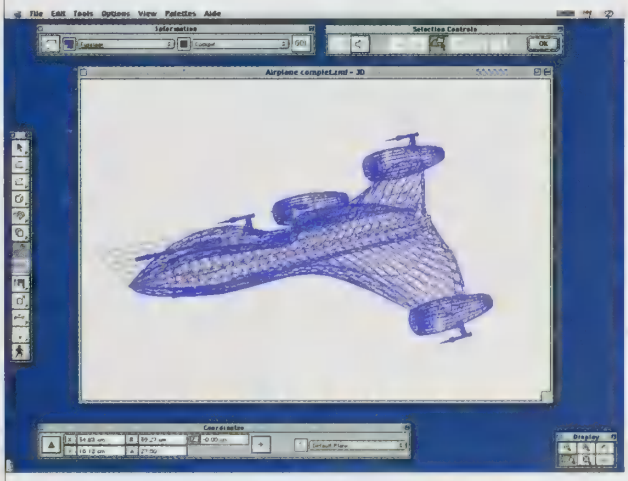
An etch-a-sketch for professionals, the PocketCAD Pro 4.0 allows for the unrestrained mobility of construction drawings. This palm-size computer drawing tool simplifies site visits and can automatically update edited drawings. 703/435-5400. Arc Second, Dulles, Va. **CIRCLE 202**

Automatic drawings

Autodesk Desktop 3.3 is the newest version of the affordable 3-D design format, with new functions such as automated change updates and leading Web functionality. 415/507-6908. Autodesk. San Rafael, Calif. **CIRCLE 203**

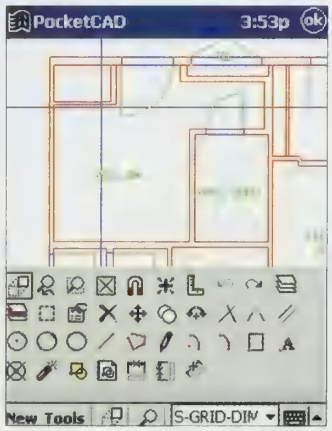
Ceilings like magic

Design Wizard software works as a plug-in to AutoCAD r14 2000 and 2000i and is free of charge on USG's Web site. Relying on Autodesk's ObjectARX functions, the Design Wizard allows designers to create a wealth of options for ceiling layouts, in 2-D and 3-D renderings, and runs as a menu item on the standard AutoCAD toolbar. 800/USG-4YOU. USG, Chicago. **CIRCLE 204**



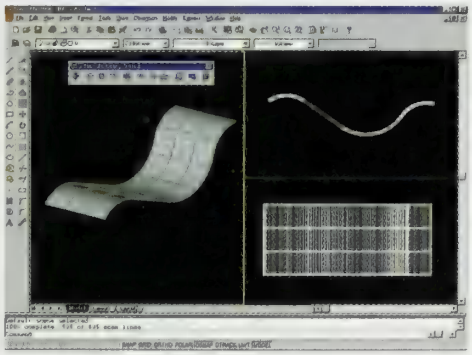
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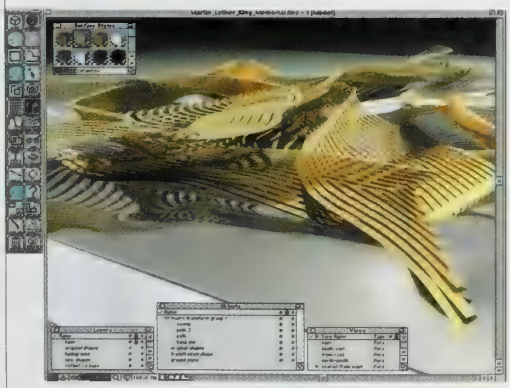




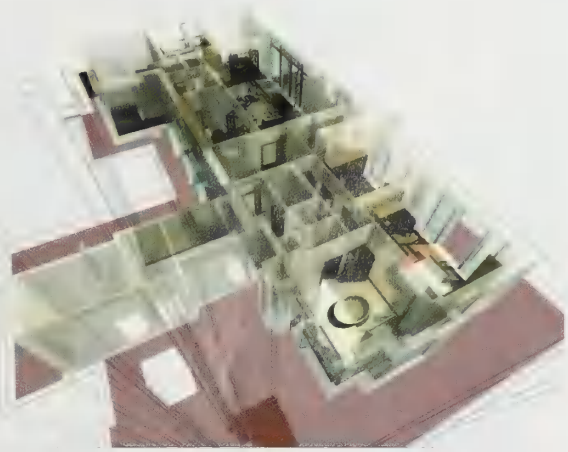
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203



General Data

Computer software ▪ Computer systems • Design office equipment & materials • Electronic literature ▪ Web-based tools

AIA contracts

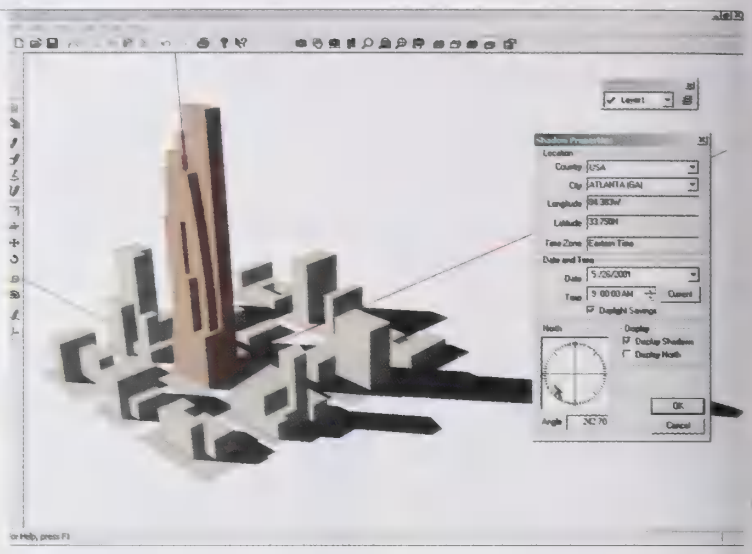
The new version of AIA contract documents in an electronic format contains more than 70 contracts and forms for all phases of the design and construction process. The EF V3.0 upgrade provides a system that is more flexible for changing legal demands. 202/626.7463. AIA, Washington, D.C. **CIRCLE 205**



205

Computer sketches

With Sketchup, early design thinking can be exported to conventional CAD or other advanced rendering software. Its main feature is a "jitter-line" mode that mimics the appearance of freehand drawing, incorporating an innovative fusion of CAD-compatible modeling and cocktail-napkin convenience. 303/245-0086. @Last Software, Boulder, Colo. **CIRCLE 206**



206

Eco-box of samples

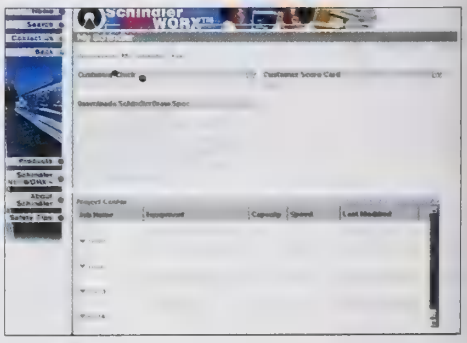
Interface has introduced an eco-friendly sampling box made from polypropylene that can be reused or recycled. Included are "Sustainability Report Cards," providing a framework in which to evaluate the full ecological impact of floor-covering products. The report card and grading system will be issued with all Bentley, Interface, and Prince Street carpet products. 770/437-6800. Interface, Atlanta. **CIRCLE 207**



207

Elevator shortcuts

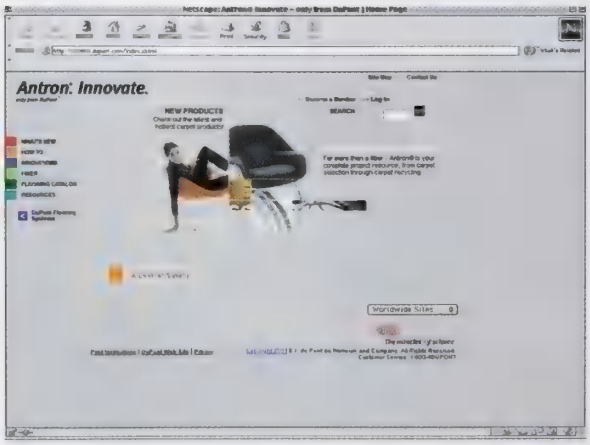
My Schindler, a new feature on Schindler Elevator's Web site, www.us.schindler.com, allows users to customize their own Schindler Web page with shortcuts to their most frequently used Schindler programs. It can also store user drawings and specifications for future editing directly from the Schindler server. 973/397-6500. Schindler Elevator, Morristown, N.J. **CIRCLE 208**



208

Carpet experts

Visit DuPont Antron's Web site, www.dupont.com, for carpet information, including new products, carpet lifecycle maintenance and recycling, style issues, technical information, and inventory access. The site has a membership option and a print screen link on every page. 800/4-DUPONT. DuPont, Atlanta. **CIRCLE 209**



209

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"Circle of Peace" is a symbol and a participatory teaching aid for life. I watched an interview with a former wh supremacist. At age 18 he was imprisoned because of his violent anti-racial acts. The interview got extremely interesting as he recounted his reformation while in prison. Prior to his sentence he vehemently avoided other ra They were to be hated, abhorred and despised. Overnight he was placed in an environment where interaction wi all of mankind was a welcome experience to solitary confinement. Play was introduced in the form of team sports Relationships developed, bias subsided and upon release from prison he was free from the prejudices and bond that had tied his hands and soul. Today he takes a radical stand against his past by speaking out in public forum exposing the violence and thought processes of hate groups. Today he coaches youth hockey to multi-cultural ki

The story is fascinating to me. The prejudice could only occur when there was no interaction. When the associations occurred the barriers went down and friendships happened.

"Circle of Peace" depicts children from all walks of life playing and enjoying each other. The circle the childre form represents the continuum of humanity. The clasped hands represent the interaction and cooperation that engenders a humanity full of compassion and respect. Respect for each others uniqueness and compassion that bridges the gap between any indifference. You'll notice I created a space in the circle. It's fascinating to watch children interact with the piece. The second they notice the gap they automatically clasp the two out-stretched hand and complete the circle! Exactly so! Each and every child is a vital link in this wonderful circle of life we call humanit

— *Gary Price*

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CIRCLE 43 ON INQUIRY CARD

Sitework, Concrete & Masonry

Earth retainage • Landscape accessories • Paving specialties • Site, street & mall furnishings • Concrete materials • Concrete formwork • Formliners • Masonry units



The durability of exposed concrete and the control of shrinkage cracks for concrete with bonded finishes is important to a client's long-term operating costs. —DAVID ALTENHOFEN, AIA, CSI, CCS

Bending balustrades

Haddonstone has expanded their balustrade collection to include eight new standard balusters and 15 non-standard designs appropriate for both interior and exterior locations. 856/931-7011. Haddonstone, Bellmawr, N.J. CIRCLE 210

Complex curved solutions

Curvatex is a new technology for developing complex surfaces. The method can create large-scale, weatherproof, stable curved surfaces without the need for formwork or framing structures. 44 020 7689 5660. b consultants, London. CIRCLE 211

Supporting fibers

The SI Concrete Systems concrete reinforcement fibers help prevent plastic shrinkage and settlement cracking, reducing the typical construction time of poured concrete up to 50 percent. 800/635-2308. SI Concrete Systems, Chattanooga. CIRCLE 212

Colored concrete

Con-Color is a permanent sealer that fastens colors to interior and exterior concrete, limestone, and terrazzo surfaces. Available in 50 standard colors and an array of custom combinations. 800/854-2094. Bomanite, Madera, Calif. CIRCLE 213

Pedestals and stools

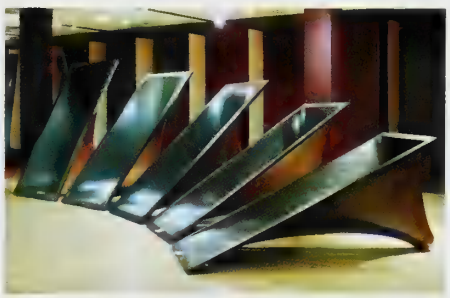
SiteForm+ launches two new lines of exterior furnishings. The vibrantly colored Bantam Collection of chairs, barstools, and tables are durable for high-traffic and exterior settings, while Orbit cast table pedestals offer a choice of spoke, dot, ring, or sandstone designs. 877/929-0011. SiteForm+, Carpinteria, Calif. CIRCLE 214

Wall innovations

iForm flat wall insulating concrete form is easily installed and is appropriate for a variety of applications. 800/468-6344. Reward Wall Systems, Omaha. CIRCLE 215



210



211



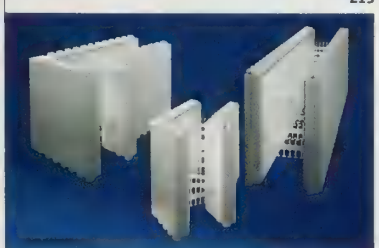
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213



214



215

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CIRCLE 44 ON INQUIRY CARD

Metals, Woods & Plastics

Structural metal framing • Railings & handrails • Metal coatings • Wood treatments • Wood veneers • Laminates • Structural plastics



The Tabu dyed veneers have a great color range. A larger variety of wood species gives architects more to choose from. —KATHY CHIA

Corrugated surfaces

New to the market, Aero is a flexible and formable corrugated anodized aluminum sheet that creates textures of depth and thickness to applied surfaces. 877/626-7788. Forms+Surfaces, Carpinteria, Calif. CIRCLE 216

Luminating glass

Skyline Design launches Lumicast, a line of translucent panels that capture embedded 3-D objects in a clear polymer glass. Available in 12 standard designs with the option of backlighting and customized effects. 773/278-4660. Skyline Design, Chicago. CIRCLE 217

Beneath the surface

DuPont introduces Corian Bas Relief Signature Surfaces, a technology that transforms Corian surfaces via a 2-D molding process, producing new textures of varied depth. 800/4-CORIAN. DuPont Corian Solid Surfaces, Wilmington, Del. CIRCLE 218

Dyed veneers

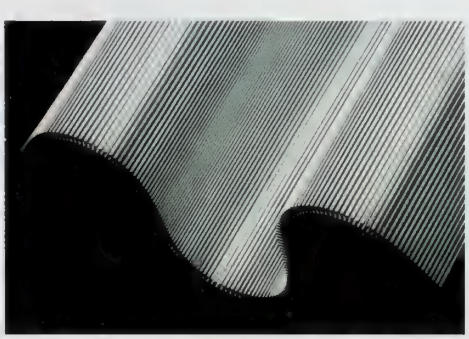
Available for the first time in the U.S., Tabu's line of natural dyed veneers includes hundreds of colors, patterns, and species that retain the characteristics of wood while eliminating color variation. 866/989-1111. WTP, Englewood Cliffs, N.J. CIRCLE 219

Sleek steel

Circum Stainless Steel guardrailings and handrails are mechanically assembled without weld joints, producing a clean and sleek design. 877/HEWI-INC. Hewi, Lancaster, Pa. CIRCLE 220

Translucent solids

The Glass Series from Avonite is a solid surface material that replicates the translucency and texture of natural glass. This year the series is available in two new colors, Cobalt and Frosted Glass. 800/428-6648. Avonite, Albuquerque. CIRCLE 221



216



218



217



219



220



221

PRODUCT REPORTS 2001

Metals, Woods & Plastics

Structural metal framing • Railings & handrails • Metal coatings • Wood treatments • Wood veneers • Laminates • Structural plastics

Graphic laminate

Graphic Standards offers 30 digital and silk-screen laminated designs that can be used for a variety of applications, including store fixtures, tabletops, or cabinets. 800/433-3200. Wilsonart, Temple, Texas. **CIRCLE 222**

Metallic finishes

Metallon launches its new line of cold spray metallic finishes, available in seven natural metal colors. They can be applied to any surface, and they age exactly like the metals they mimic. 800/542-9118. Metallon, Parkersburg, W.Va. **CIRCLE 223**

Organic metals

Formica DecoMetal introduces a variety of new laminates including organic, perforated, and geometric wood designs that provide an alternative to traditional metal surfaces. 800/FORMICA. Formica, Cincinnati. **CIRCLE 224**

Drier wood

Fraserwood operates a Radio Frequency/Vacuum Kiln dedicated solely to the drying and subsequent dimensional stabilizing of timbers and logs up to 40 feet long. In a matter of days, timber will be dry enough to prevent shrinkage and warping. 604/892-7562. Fraserwood Industries, British Columbia. **CIRCLE 225**

A hardy alternative

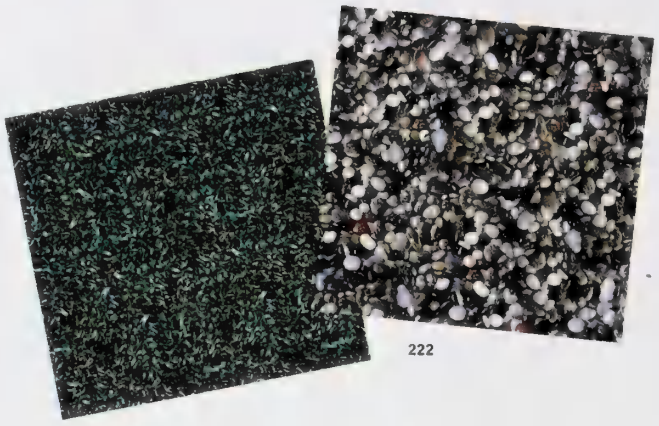
The ICBO-approved Hardy Frame, engineered from light-gauged steel, is designed to resist earthquake and wind loads, providing architects with greater structural flexibility. 800/754-3030. Hardy Frames, Ventura, Calif. **CIRCLE 226**

Recyclable laminates

Abet Laminati has launched Tefor, its first recyclable material. Tefor, an alloy of high-pressure laminates and chemically inert polypropylene, can be used for a variety of interior applications. 800/228-2238. Abet, Englewood, N.J. **CIRCLE 227**

Railing rally

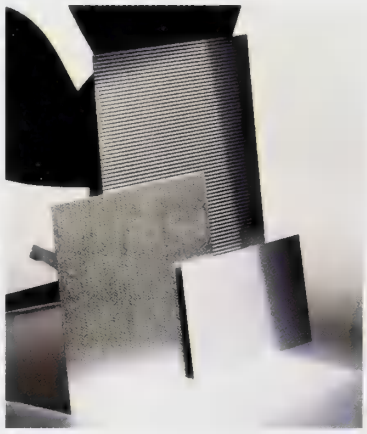
P&P Artec offers a complete line of customized stainless-steel railings that will curve and bend to fit almost any space, whether residential, commercial, or urban. 630/860-2990. P&P Artec, Wood Dale, Ill. **CIRCLE 228**



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223



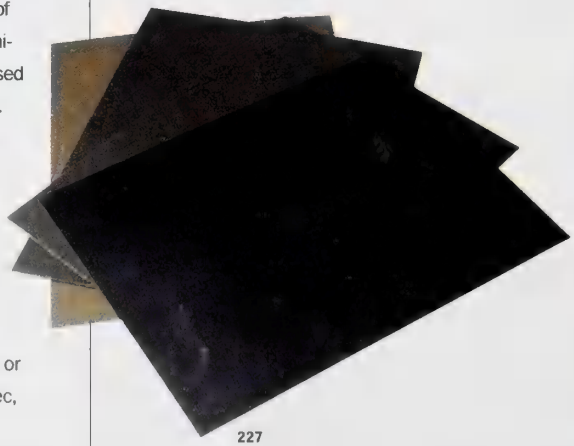
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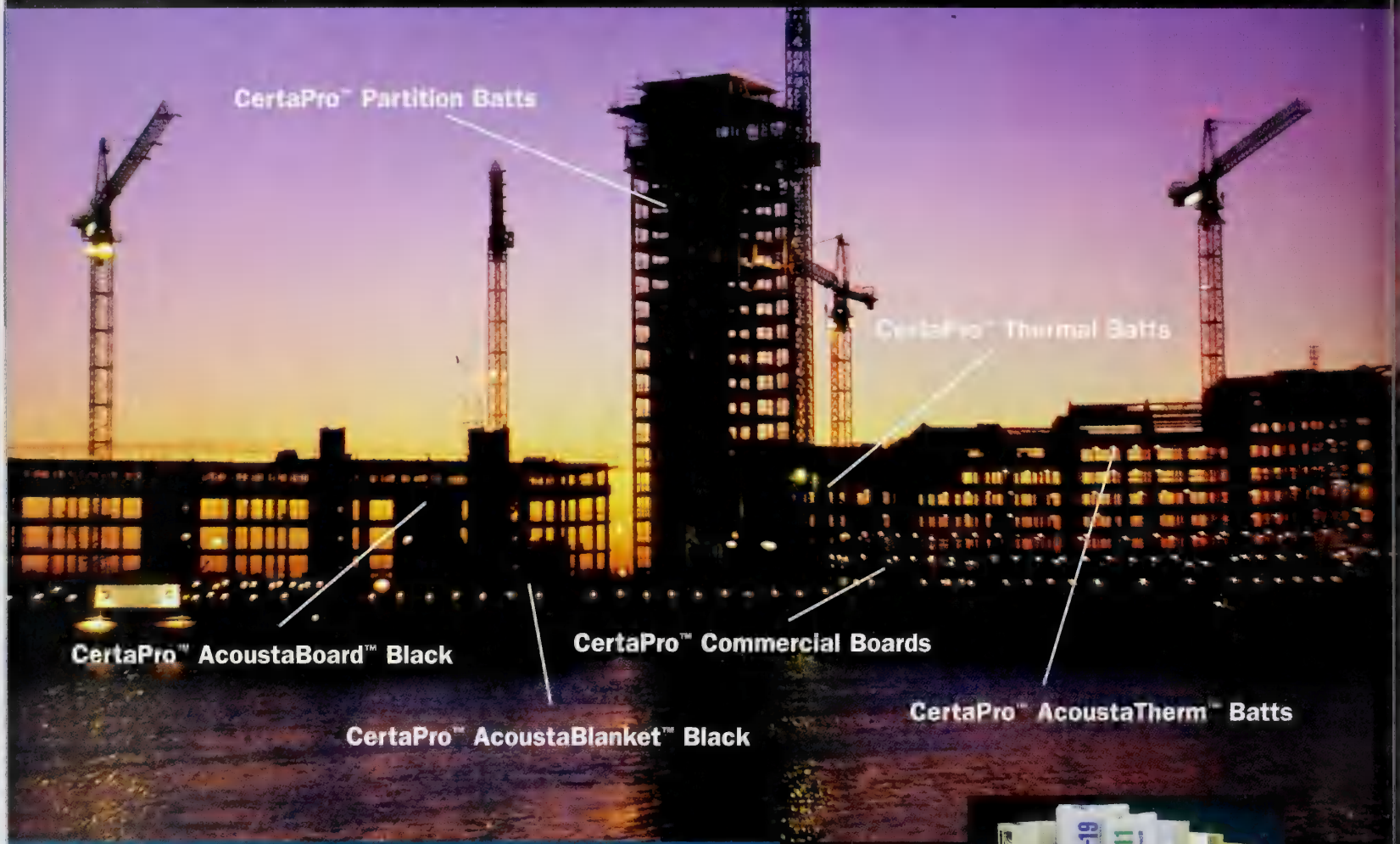
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CIRCLE 45 ON INQUIRY CARD

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CIRCLE 46 ON INQUIRY CARD

Thermal & Moisture Protection

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Two novel products I found interesting were the Velux skylight and the operable dome skylight. —*MARTIN MUNTER, AIA, CCS*

Flexible wrap

DuPont Tyvek FlexWrap is a flexible, self-adhering flashing tape that protects vulnerable areas of square and arched rough openings. 800/44-TYVEK. DuPont Tyvek Weatherization Systems, Wilmington, Del. CIRCLE 229

Roof coating system

Neogard's Elasta-Gard engineered roof coating system is designed for application directly over new and existing smooth or gravel built-up, modified bitumen, and metal roof systems. 800/321-6588. Neogard, Dallas. CIRCLE 230

Weather protection in a flash

OptiFlash is a premium butyl rubber flashing that provides a weatherproof seal for all window, door, and skylight installations. 804/876-3135. Ludlow Coated Products, Doswell, Va. CIRCLE 231

See the stars

OpenAire designed and installed this custom skylight application to meet the needs of an amateur astrologer. The dome can open to up to 50 percent of its area. 905/819-8535. OpenAire, Mississauga, Ontario. CIRCLE 232

Automatic closing skylight

Velux's Electric Venting Skylight comes with a pre-installed motor and control system, an infrared remote control, and two automatic rain sensors. 800/283-2831. Velux America, Greenwood, S.C. CIRCLE 233

Steely options

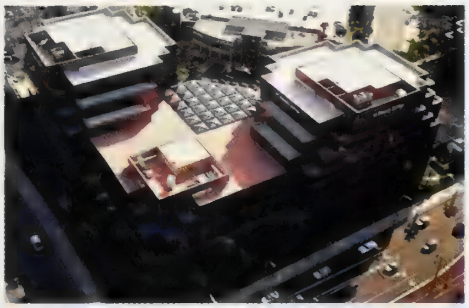
Patterned Stainless Steel finishes are available in two grades of architectural stainless steel, three standard finishes, and six textured and three embossed patterns. 412/299-8218. Centria, Moon Township, Pa. CIRCLE 234

Automatic fire vent

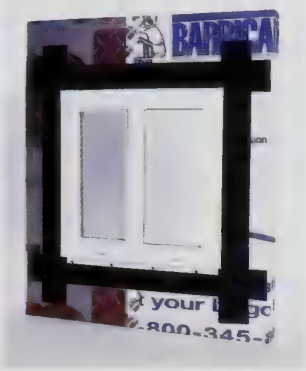
The Lumivent automatic fire vent's multiwall cover construction provides an increase of more than 40 percent in insulation performance when compared to traditional domes. 203/934-6363. The Bilco Company, New Haven. CIRCLE 235



229



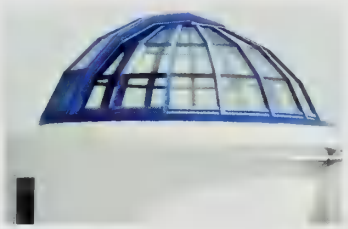
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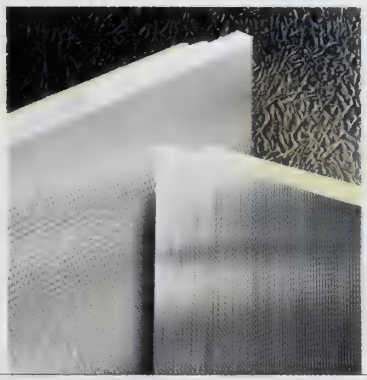
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235

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CIRCLE 47 ON INQUIRY CARD

Doors & Windows

Wood & plastic doors & frames • Wood windows • Door hardware • Glass • Decorative glazing • Glazing film • Glazed curtain walls



Pilkington's Activ self-cleaning glass is a major innovation and can reduce maintenance costs significantly. —*MARTIN MUNTER, AIA, CCS*

Bright idea

Brighthandle communicates with colored light; light is transported from a diode in the bolt to the handle through fiber optics, ensuring that there is no electricity in the handle itself. Brighthandle may be used as a safety feature or to communicate room occupancy in hotels, rest rooms, or conference rooms. 46 08 222201. Brighthandle AB, Stockholm, Sweden. **CIRCLE 236**

Meshed glass

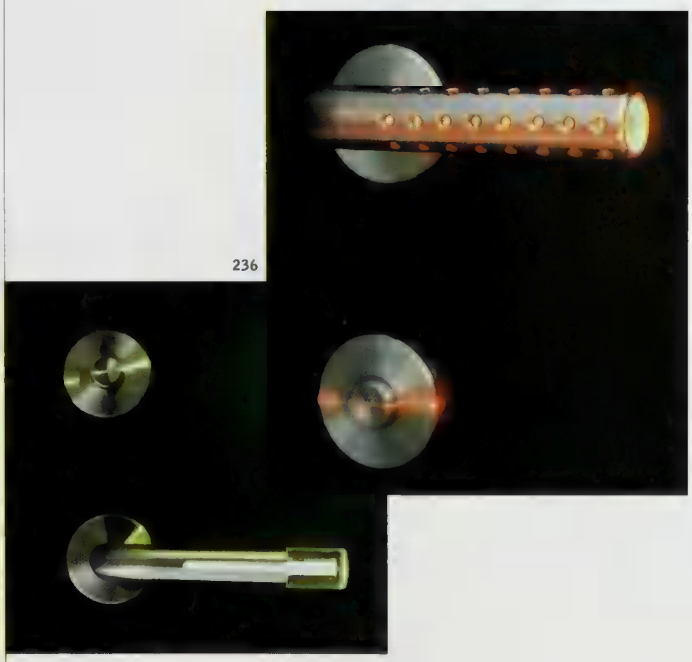
Well suited for facade glazing, Okatech insulating glass combines the possibilities of patterned mesh with the performance of insulating glass. Natural light is both refracted within the mesh apertures and reflected from the mesh surfaces, resulting in changing illumination effects. 914/378-3839. Schott Corporation, Yonkers, N.Y. **CIRCLE 237**

Fit for a king

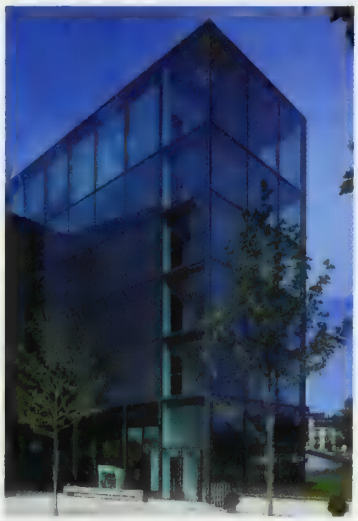
Royal glass is a precision-rolled glass that comes in four patterns. Available exclusively through Bendheim, Royal Glass can be tempered, laminated, mirrored, or bent and is suitable for insulated units. Applications include floor-to-ceiling partitions, ceilings, shelving, building facades, shower doors, or furniture. 212/226-6370. Bendheim, New York City. **CIRCLE 238**

Solar scrubbing

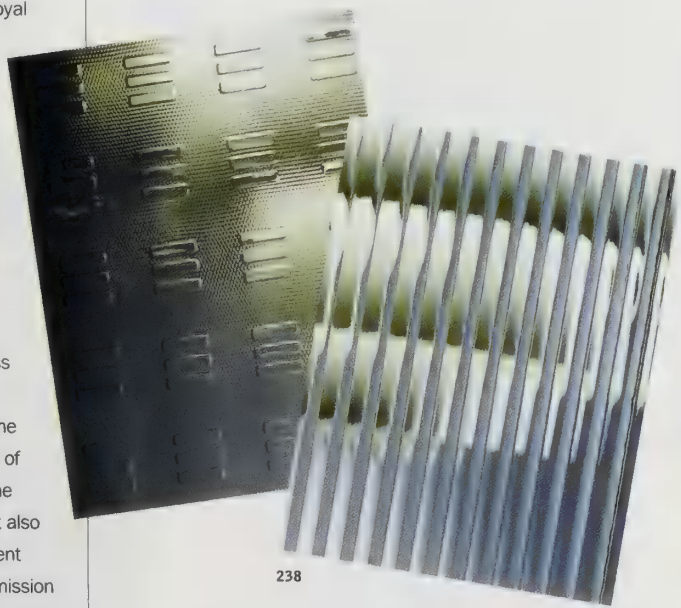
Pilkington Activ Self-Cleaning Glass uses the sun's UV rays to break down organic dirt while at the same time reducing the surface tension of water, allowing it to sheet down the surface and wash away the dirt. It also provides an approximate 20 percent reduction in ultraviolet light transmission over clear glass and equivalent energy efficiency. Available in thicknesses ranging from 3/32" to 1/4". 866/88-ACTIV. Pilkington North America, Toledo. **CIRCLE 239**



236



237



238

239



Doors & Windows

Wood & plastic doors & frames • Wood windows • Door hardware • Glass • Decorative glazing • Glazing film • Glazed curtain walls

Handy security

In less than a second, HandKey IIv hand reader verifies your identification by the size and shape of your hand, eliminating the hassle of cards or keys. The product contains a complete door controller for entering and exiting and is compatible with most electrical locks. The hand reader is designed for single opening applications and is used as a stand-alone system anywhere from computer rooms to pharmacies. 800/999-0408. Von Duprin, Indianapolis. **CIRCLE 240**



240

Colorful solutions

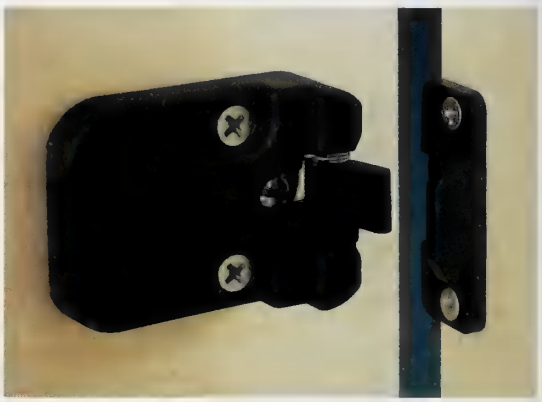
Traditionally used as an exterior component in buildings, architectural laminated glass is now seeing increased use as an artistic design option in interior spaces. Solutia's colored plastic interlayers are made with heat and light-stable pigments, instead of dyes, to produce truer colors. 877/674-1233. Solutia, St. Louis. **CIRCLE 241**

241



Snap to it

The Cara Snap lock system holds doors and drawers securely in position and, unlike other catches or snaps, allows them to open noiselessly and without resistance. Fabricated of nylon coupled with a stainless-steel spring, the Cara Snap is also suitable for the boating and caravan industries. 800/423-3531. Häfele America, Archdale, N.C. **CIRCLE 242**



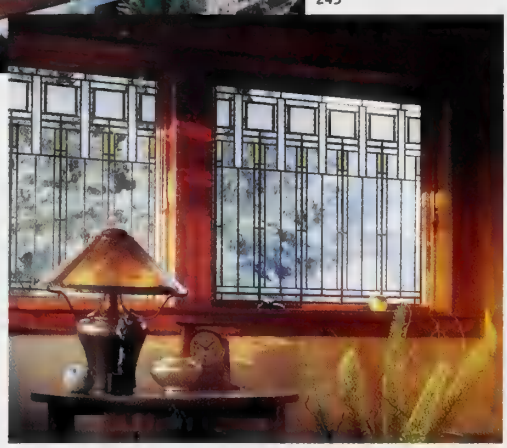
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243

The 'wright' window

Andersen Windows now offers forest green (above) as a standard exterior color option available for no additional charge with Andersen 400 Series windows and patio doors. Also included in the 400 series launched this year by Andersen is the Frank Lloyd Wright series art glass collection (below). The collection is inspired by four of the renowned architect's projects. 800/426-4261, ext. 1232. Andersen Windows, Bayport, Minn. **CIRCLE 243**



Decorative glazing

Three new patterned-glass options, Floralite, Glue Chip, and Radiance, can be used in architectural applications where privacy or a decorative appearance is desired. 714/449-7860. Guardian Industries, Fullerton, Calif. **CIRCLE 244**



244

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Doors & Windows

Wood & plastic doors & frames ▪ Wood windows • Door hardware ▪ Glass • Decorative glazing • Glazing film • Glazed curtain walls

Mies-inspired

Named after the glass-walled 1929 German Pavilion in Barcelona, the Pavilion system, designed by Antonio Citterio, is a fixed- and sliding-door program with frames available in five types of profile finishes. Doors come in tempered, transparent, or frosted glass, and in veneered canaletto or white chestnut oak. 212/935-5955. Tre Piú, New York City. **CIRCLE 245**

A new species

The Wood Species by Eagle offers a variety of soft and hard woods for doors and windows to complement interior decor and furnishings. Options are available in pine, fir, maple, oak, mahogany, cherry, or walnut. 800/453-3633. Eagle Window and Door, Dubuque, Iowa. **CIRCLE 246**

Transparent fire walls

Pilkington Pyrostop is a fire-rated (up to two hours), impact-safety-rated, transparent wall panel that helps block heat transfer. 888/397-FIRE. Technical Glass Products, Kirkland, Wash. **CIRCLE 247**

A traditional look

The Wood Ultimate Double Hung window features a frame constructed for maximum stability and an exterior surface with a solid wood profile that meets most historic restoration criteria. The sashes easily tilt for cleaning. 888/537-8266. Marvin Windows and Doors, Warroad, Minn. **CIRCLE 248**

Cyberlock and key

CyberLock is an electronic programmable core that converts a mechanical lock into a fully functional access control system without a power source. It also ends key-control problems by eliminating costly rekeying or recoring of hardware. 866/287-4274. Videx, Atlanta. **CIRCLE 249**

Sleek system

Designed for use on ⅜" and ½" sliding and pivoting tempered-glass doors, the Manet Compact system features stainless-steel fixtures and components for a clean, modern look in corporate offices, meeting facilities, and other applications. Components that attach directly to the glass surface feature strong, flush-fitting, single-point fixings for an uncluttered appearance. 301/390-3600. Dorma Glas, Upper Marlboro, Md. **CIRCLE 250**

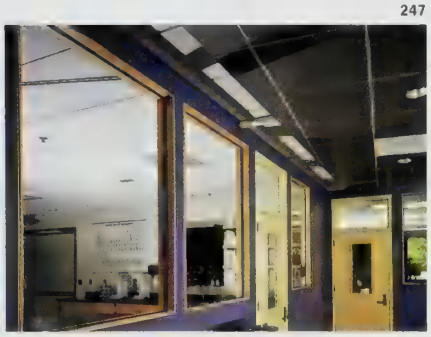
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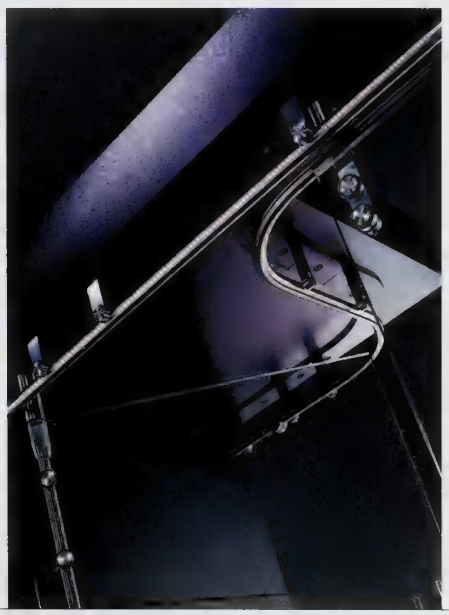
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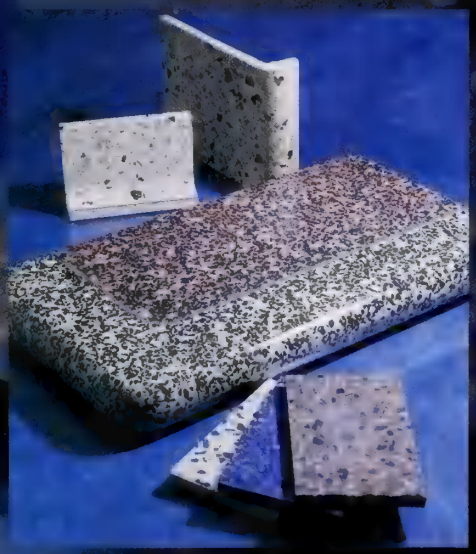
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Terrazzo Tile and precast terrazzo accessories from Wausau Tile are your best choice when it comes to completing your next flooring project on a tight deadline. Terrazzo tile is quicker and easier to install compared to traditional poured terrazzo. And, adding color accents or an intricate logo pattern into the floor is much simpler, thanks to our water-jet technology for precise cutting of the terrazzo pieces.



NEW EPOXY TERRAZZO

Wausau Tile now introduces our new Epoxy Terrazzo for your precast terrazzo accessory needs. In addition to matching our regular terrazzo colors, the new Epoxy Terrazzo will be available in deeper, richer colors to enhance your setting. Inquire for more details today!

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CIRCLE 48 ON INQUIRY CARD

Finishes

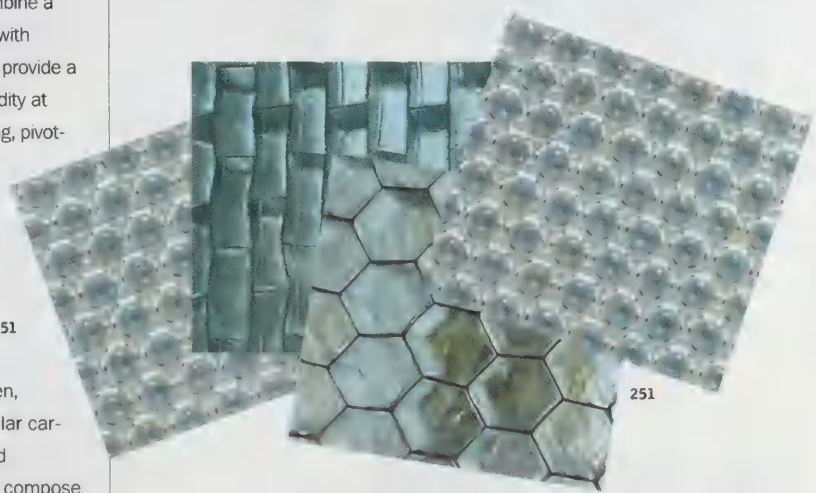
Tile ▪ Glass mosaics ▪ Terrazzo ▪ Ceilings ▪ Wood/resilient/laminate flooring • Carpet tile ▪ Sheet carpet • Wall coverings ▪ Paint



The large-scale patterns and clear color palette of Oxygen are a wonderful marriage to Milliken's tile performance. I can't wait to spec this. —ROYCE EPSTEIN

Honeycomb walls

Panelite translucent panels combine a bonded sandwich construction with a structural honeycomb core to provide a novel look and strength and rigidity at a minimal weight. Ideal for sliding, pivoting, or partition walls, as well as furniture applications, the panels provide varying degrees of visual privacy or exposure. 212/343-0995. Panelite, New York City. CIRCLE 251



251

Carpet composition

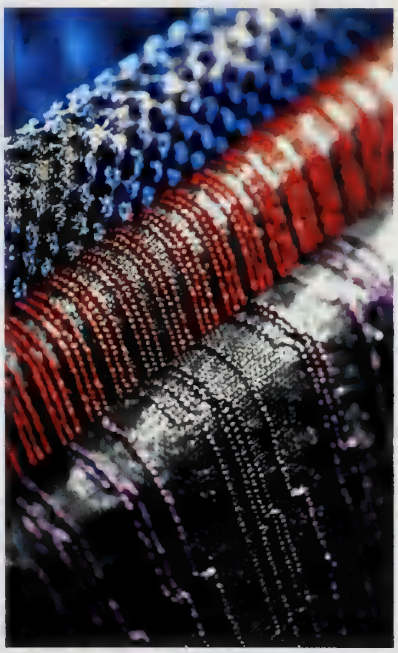
Designed by Gensler for Milliken, Oxygen is a collection of modular carpet tiles that can be mixed and matched to allow designers to compose their own graphic art on the floor. The carpet tiles are engineered with precise modulation to ensure that patterns match. 800/241-4826. Milliken Carpet, LaGrange, Ga. CIRCLE 252



252

Exposing the underside

Metafloor is a hybrid carpet and hard surface flooring that celebrates the synthetic woven properties typically found on the backing material of carpeting. Available in a range of vibrant colors. 800/523-5647. Lees Carpets, Greensboro, N.C. CIRCLE 253



253

Gotham and grooves

Ann Sacks expanded its offering this year with a selection of new tiles and flooring. Gotham (top) is a modern-retro porcelain tile available in Ovals, Round Rectangles, and Drops. Groove (center), by Barbara Barry, incorporates the grout line into the design of the tile by "grooving" the tile itself. Perlot wood planks (bottom) can be used for both floors and walls. Perlot comes in two, three, four and six foot lengths, has a 3.6 mm hand-selected Northern hard maple wear layer, and a tongue-and-groove milling. The plank is 5/16" thick by 5" wide. 800/278-8453. Ann Sacks, Portland, Ore. CIRCLE 254



254

Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

Terrazzo tiles

Petrae terrazzo-style tile derives its look from combined glass chips and quarried stones in a resin mix. Lightweight, thin, and flexible, Petrae can be installed directly on top of existing floors and surfaces or as a veneer on furniture. 305/597-4099. Bisazza, Miami, Fla. **CIRCLE 255**

Textiles take shape

Shatterproof and highly impact-resistant, Xorel Surfaces is a woven hard surface material that can be manipulated to create a variety of design possibilities. 800/727-6770. Carnegie, Rockville Centre, N.Y. **CIRCLE 256**

Turning walls into gold

Innovations has designed overprints on its Eco-Alchemy wallcovering products. Comprised of wood pulp and recyclable polyester, the prints are breathable, reducing mold and mildew. 212/807-6300. Innovations in Wallcoverings, New York City. **CIRCLE 257**

Integrated systems

The new i ceilings invisibly integrate sound and wireless systems by embedding antenna and sound panels into standard ceiling panels, increasing employee mobility and speech privacy while avoiding unattractive antenna installations. 877/276-7876. Armstrong, Lancaster, Pa. **CIRCLE 258**

Standing over a palm tree

Smith & Fong Plyboo's recently introduced palm-wood flooring is gathered throughout Southeast Asia from plantation-grown coconut palms that would otherwise be discarded. 866/835-9859. Smith & Fong Plyboo, San Francisco. **CIRCLE 259**

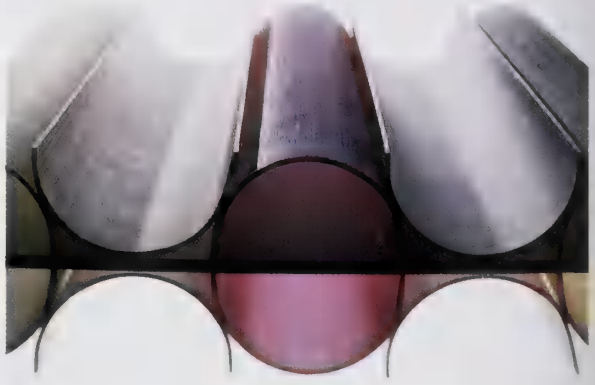
New options for offices

Interface's new striated patterns, Chenille Warp and Sabi, were developed in response to the desire to get bold colors and textures on the corporate office floor. They are manufactured almost entirely from post-industrial recycled nylon. 706/812-6113. Interface Flooring Systems, LaGrange, Calif. **CIRCLE 260**

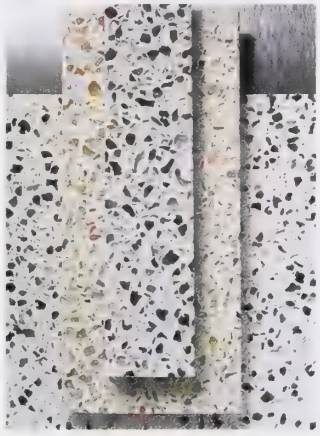
Creative light coves

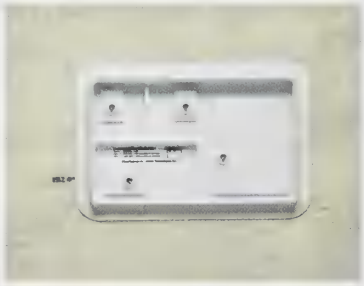
Corniche is a linear lighting system available in a variety of architectural metals and painted materials that can be perforated with a choice of patterns. 800/822-3411. Ceilings Plus, Los Angeles. **CIRCLE 261**

256

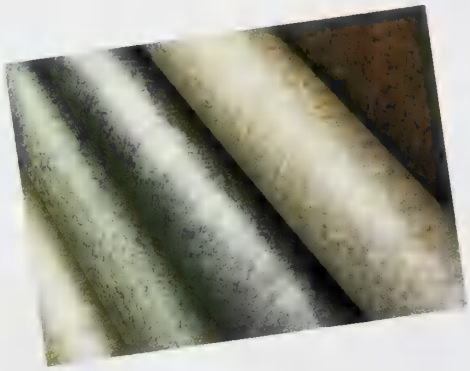


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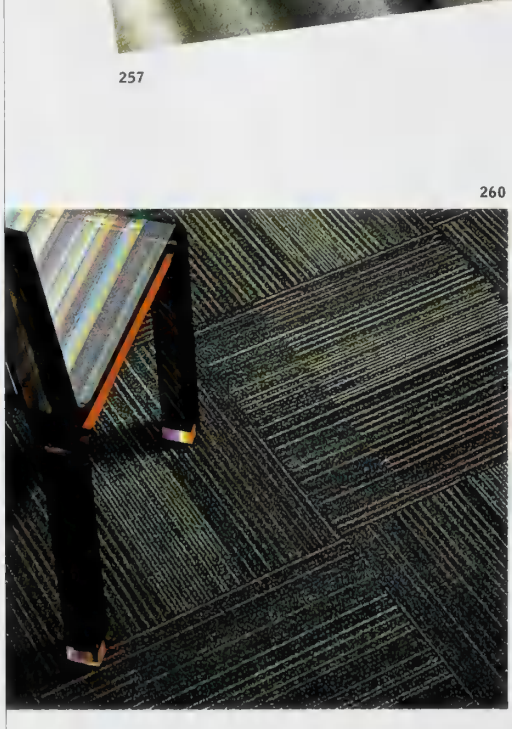


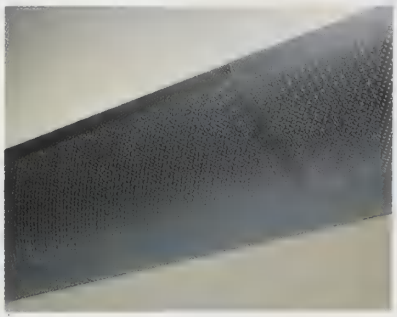
257



259

260





261

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Finishes

Tile ▪ Glass mosaics ▪ Terrazzo ▪ Ceilings • Wood/resilient/laminate flooring ▪ Carpet tile • Sheet carpet • Wall coverings • Paint

Bold carpets

The 501 Collection includes eight new styles in a rectangular tile format and features patterns that use natural pigments, coarse woven structures, tribal imagery, and ancient icons. 800/5-PRINCE. Prince Street, Carterville, Ga. **CIRCLE 262**

Legendary inspiration

The look of jasper (*diaspro* in Italian), used by ancient civilizations to test the purity of gold and silver, is reproduced in the new Diaspro di Lidia series from EmilCeramica. These glazed porcelain tiles are suited for indoor and outdoor use. 866/845-3766. Italian Trade Commission, New York City. **CIRCLE 263**

Far out flooring

Amtico's Colormetrics line offers psychedelic color lines in eight "fruit flavors." The Techno range offers metallic styles using Amtico's magnetic embossing technique to give the tiles a simulated 3-D effect. 800/268-4260. Amtico International, Atlanta. **CIRCLE 264**

A reason to look up

Translucents Luminous Infill panels can be integrated with lighting to create a variety of visual effects. They accommodate both curved and flat ceiling systems and can be matched with coordinated suspension ceiling colors. 800/ USG-4YOU. USG, Chicago. **CIRCLE 265**

Drawn from nature

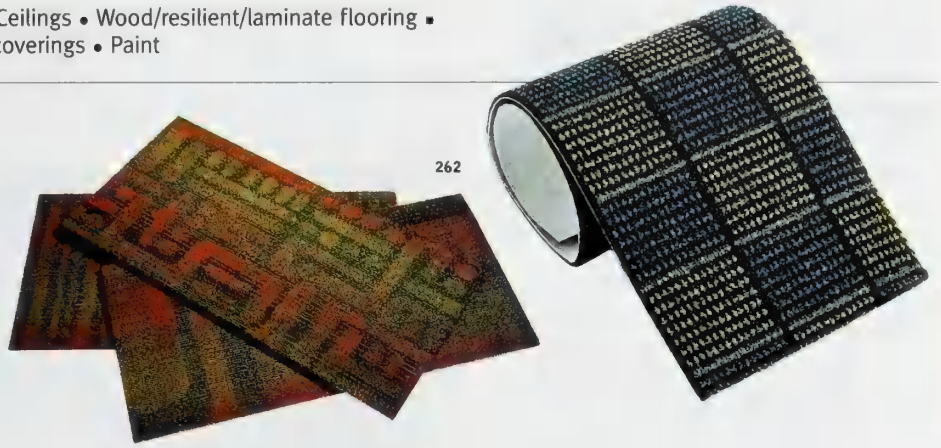
The elegant new Symmetries line by Interlam includes wall and ceiling acoustical panels as well as door skins, in either sculptured, embossed, or perforated finishes. 888/551-2772. Interlam, Ft. Lauderdale, Fla. **CIRCLE 266**

"KorQ" floors and walls

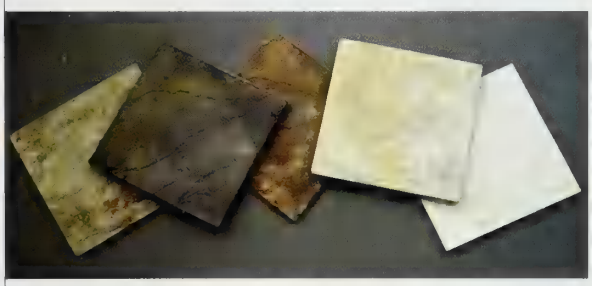
ProntoKorQ is a series of floor and wall tiles in striped, cork-terrazzo, solid, and chunk styles. A layer of nonformaldehyde MDF is sandwiched between layers of insulating and high-density granulated cork. 212/758-2593. KorQinc, New York City. **CIRCLE 267**

Liquid tiles

Vitrum Liqua tiles from Ceramgres come in a variety of lustrous colors and numerous square or rectangular sizes. 866/845-3766. Italian Trade Commission, New York City. **CIRCLE 268**



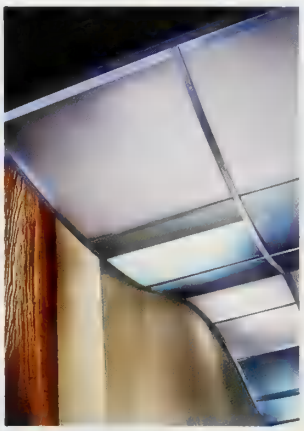
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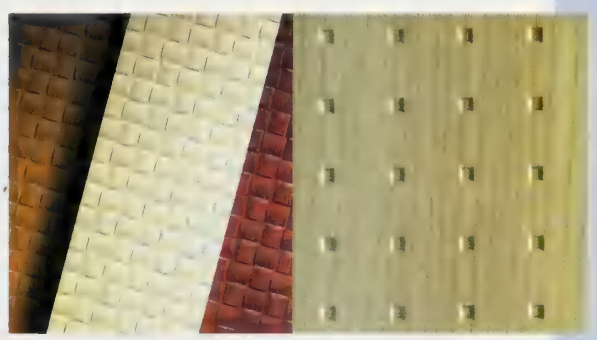
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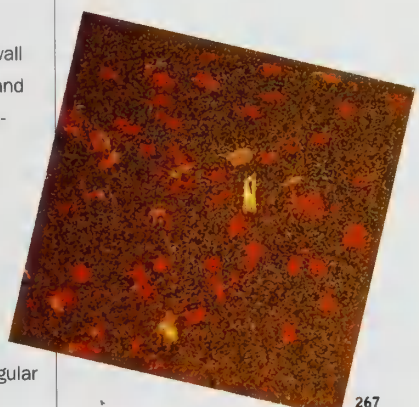
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267

268



Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

Super safety floor

Polyflor Supratec safety floor has a soil-releasing polymer system that eliminates the need for harsh cleaning chemicals. It features enhanced hygiene protection. 800/852-8292. Bonar Floors, Newnan, Ga. **CIRCLE 269**

Art of ceramics

Newly available in the U.S., Appiani offers three lines of ceramic tiles for residential and commercial projects: Anthologhia Colori, Appianissima, and Arco Techno. 866/845-3766. Italian Trade Commission, New York City. **CIRCLE 270**

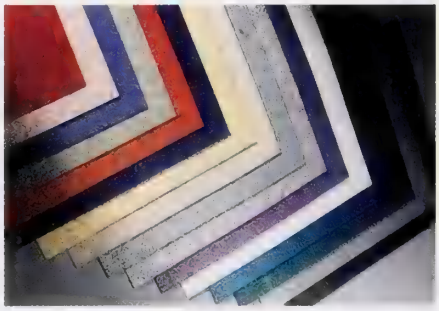
Makes no scents

The Harmony Low Odor Interior Latex line offers a complete interior paint line, from primer to topcoat, without disruptive odors. 800/321-8194. The Sherwin-Williams Company, Cleveland. **CIRCLE 271**

Sea you again

Using a special technique, designers at Cotto Veneto have given Vetro Del Piave mosaics the smoky effect of sea glass. 866/845-3766. Italian Trade Commission, New York City. **CIRCLE 272**

269



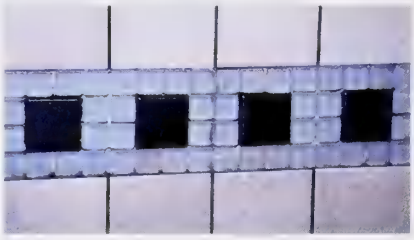


270



271

272



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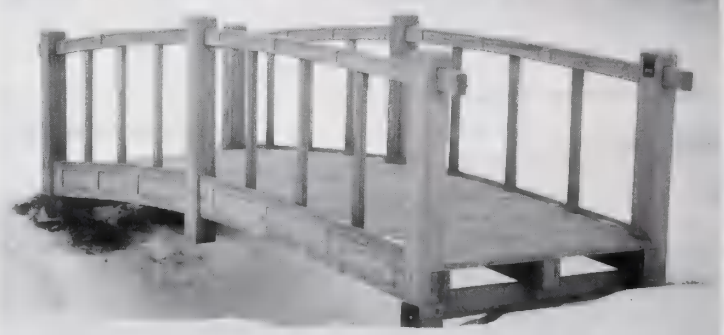
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Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

Fusing color and glass

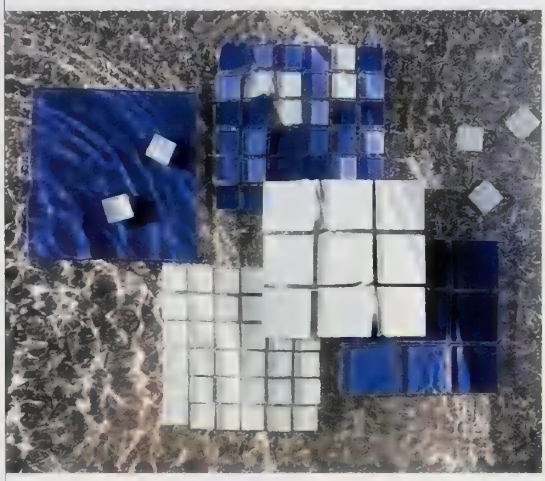
Handmade in Italy, the Fusion glass tile collection is available in 17 translucent colors and several sizes, either as mosaic pieces on 12" mesh-mounted sheets or nonmosaic, single tiles (6" squares or 3" x 6" bricks). 877/611-0199. Walker Zanger, Sylmar, Calif. **CIRCLE 273**

Joie de vivre

Part of the Book Ends series, Joie de Vivre, Shaw's new broadloom collection, is designed so that variations, and product delivery, are easy. 877/502-7429. Shaw Contract, Dalton, Ga. **CIRCLE 274**

Gem of a tile

Crossville's new Gemas series of porcelain tiles has the appearance of almost translucent stone. Gemas is available in ten colors ranging from water blues to blue greens to colored naturals. Because the tiles are all perfectly square (18" x 18"), it is possible to create a high-tech look using very thin grout joints. 800/221-9093. Crossville Porcelain Stone/USA, Crossville, Tenn. **CIRCLE 275**



273



274



275

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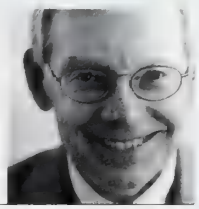
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CIRCLE 53 ON INQUIRY CARD

Specialties

Access flooring ▪ Signage & graphics ▪ Wardrobe & closet specialties ▪ Wall & corner guards ▪ Hat & coat racks & accessories



Our designers are looking for more finish options for raised access flooring other than high-pressure laminate and carpet.

—STEPHEN D. EMPIE, AIA, CSI

Italian stilo

Italian product design shrinks the blob aesthetic down to handheld objects, exhibited in Confalonieri's new collection of coatracks and handles for doors and drawers. The designs are absent of sharp edges, and the opposing combinations of metals and plastics is consistently fluid. 877/652-6274. Confalonieri USA, San Francisco. **CIRCLE 276**

Concrete office

Walking on raised access flooring covered in TecCrete can feel like a stroll on a city sidewalk. This patented flooring system is designed specifically for office spaces, to provide a sturdy ground for an elevated environment. TecCrete uses the structural strength of concrete reinforced with steel to produce a flooring finish that does not require carpeting. TecCrete is part of Interface's iRise system of modular power, data, and HVAC delivery solutions. 312/755-2113. Interface AR, Grand Rapids. **CIRCLE 277**

Media prop

Profile One Infomast provides support for three levels of engagement with the body: eye, hand, and foot. Floor-to-ceiling aluminum mounts are encased in stainless steel, and information monitors are flexible, to provide for individual or collective reception. 800/553-7722. Cornelius+, Pittsburgh. **CIRCLE 278**

Technological signage

The Ariadne eases the flow of circulation in any high-capacity space. A technological sign system, Ariadne combines plasma screens embedded into its own freestanding object, providing greater visibility than ceiling-mounted monitors. The display of graphics or text as a discrete architectural element results in faster-moving crowds in congested places. 800/ASI-SPEC. ASI Sign Systems, Dallas. **CIRCLE 279**



276



278



277



279


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CIRCLE 54 ON INQUIRY CARD

Equipment

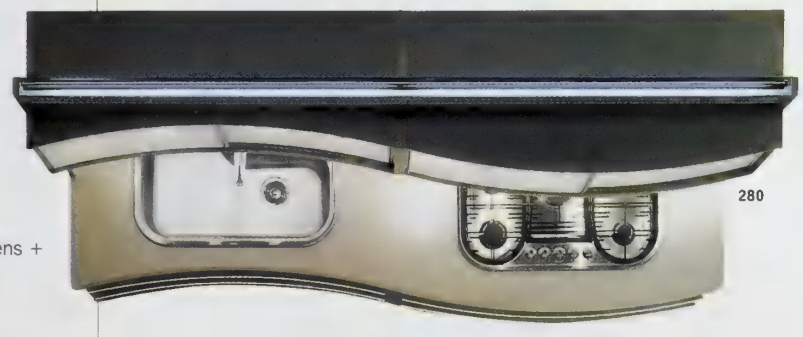
Countertops • Kitchen hood & ventilation equipment • Athletic & recreational equipment • Residential appliances • Merchandising/display equipment • Projection screens



Mat Lifter is a clever extension of Draper's traditional shade and screen business. —STEPHEN B. EMPIE, AIA, CSI

Curvy countertops

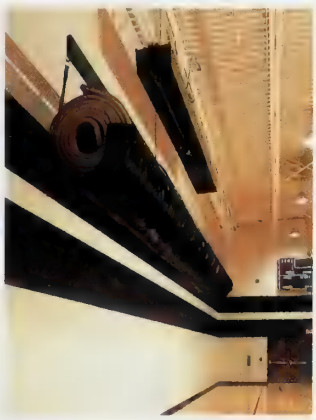
Snaidero introduces Sistema ES, an "S" curve kitchen countertop designed by Italian architects Roberto Lucci and Paolo Orlandini. Already available in Italy, Sistema ES will make its North American debut in Spring 2002. 877/SNAIDERO. Snaidero Kitchens + Design, Los Angeles. CIRCLE 280



280

Unsightly mats?

Draper now offers three models of the Mat Lifter for single, double, and sectional mats. 765/987-7999. Draper, Spiceland, Ind. CIRCLE 281



281

Venting canopies

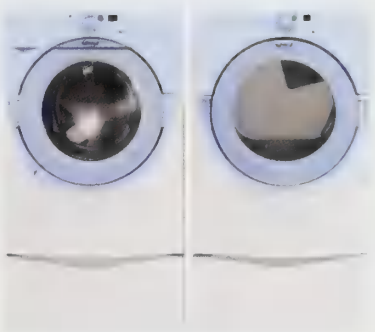
Exclusively designed and manufactured in Italy, the Torino is the signature piece of the Zephyr's Europa Collection of stove ventilation systems. Torino is available with six variable speeds and touch-pad controls. 888/880-VENT. Zephyr Ventilation, San Francisco. CIRCLE 282



282

Smart laundry

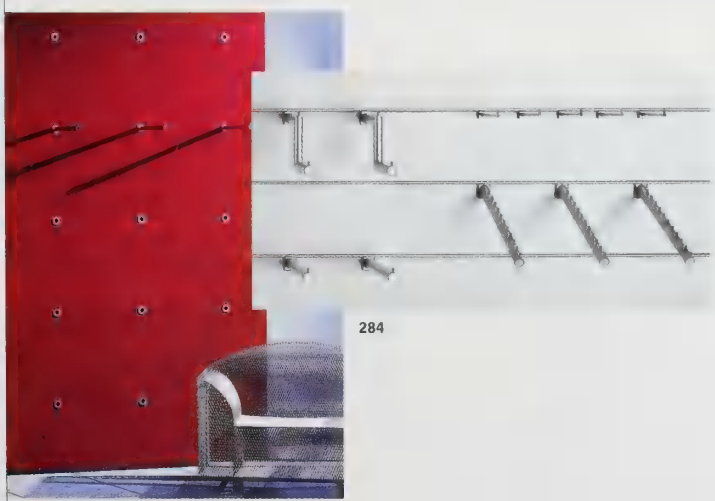
Whirlpool introduces Duet, a front-loading washer and dryer that uses 68 percent less water and 67 percent less electricity than the standard washing machine. 800/253-3977. Whirlpool, Benton Harbor, Mich. CIRCLE 283



283

Visplay it better

Marlite in conjunction with Visplay, a Vitrashop company, launched their new collection of hanging systems with the debut of Mono and Stripes—a clean, stainless-steel socket and stripe system that creates sleek horizontal displays. 330/343-6621. Marlite, Dover, Ohio. CIRCLE 284



284

Project your presentation

The Rear Projection Smart Board 3000i is an interactive whiteboard that turns your computer into a presentation and collaboration tool. 888/42-SMART. Smart Technologies, Calgary. CIRCLE 285



285

So Jerry, tell me just what exactly are your favorite things about specifying doors and hardware? Jerry? Jer?



There are two ways DHI can help in a situation like this...

For the determined do-it-yourselfer:

DHI offers a CD-ROM self-study course on the *Fundamentals of Architectural Doors and Hardware*. It's the equivalent of a five-day classroom course that covers hollow metal doors and frames, wood doors, builder's hardware, electrified hardware and access control products, codes, standards and specification tips. It contains 15 complete lessons that offer you up to 29 AIA/CES points (23 of which are health/safety/welfare). This course offers a formal education in Division 8 products and their applications.

For the "there must be an easier way to do this" type:

It's easy! Hire a DHI certified Architectural Hardware Consultant (AHC) or Certified Door Consultant (CDC) to write your specifications for you. Individuals with these accreditations after their name are the highest trained, most experienced consultants in this aspect of the design/build process. If you want the best, hire the best. If you want something less, you know the rest.

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Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating • Healthcare/school/library/hotel furniture • Systems furniture

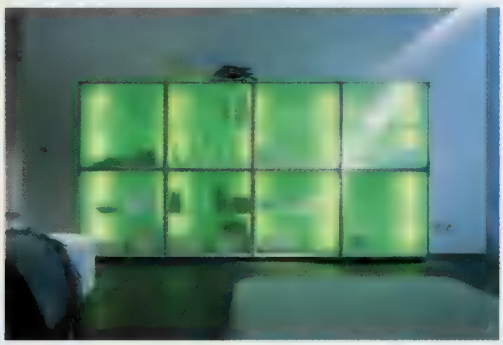


Whoever thought you could deconstruct Ethospace and make it look fresh and also function in the open-plan environment? This is a great example of nonobsolescence in the furniture world. —*ROYCE EPSTEIN*

Moody cabinets

The Modular cabinet system "eo" consists of cubes with glass walls and doors held in a filigree metal structure. LED strips emitting the primary colors are installed in the back edges of each cube. With the remote control, users can mix the primaries to create every conceivable color, from sunflower yellow to deep violet. Four storage variations are available for a CD system, a minibar, dishware, or wine shelves. 800/319-8222. M2L, New York City. **CIRCLE 286**





286

Magnesium chair

Using magnesium, a material never seen before in furniture design, Bernhardt Design launches its new Go Collection designed by Ross Lovegrove. Lighter than aluminum and possessing the highest strength-to-weight ratio of any more commonly used material, magnesium makes the Go Chair's organic construction suitable for a variety of settings. 866/634-0191. Bernhardt Design, Lenoir, N.C. **CIRCLE 287**



287

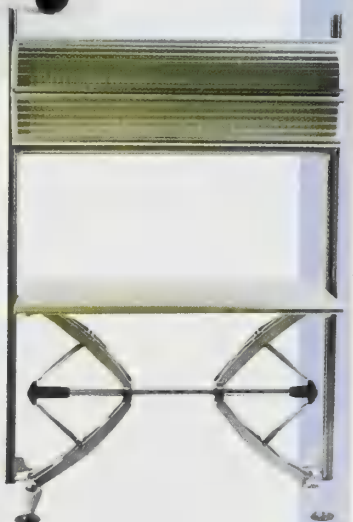
Multitask furniture

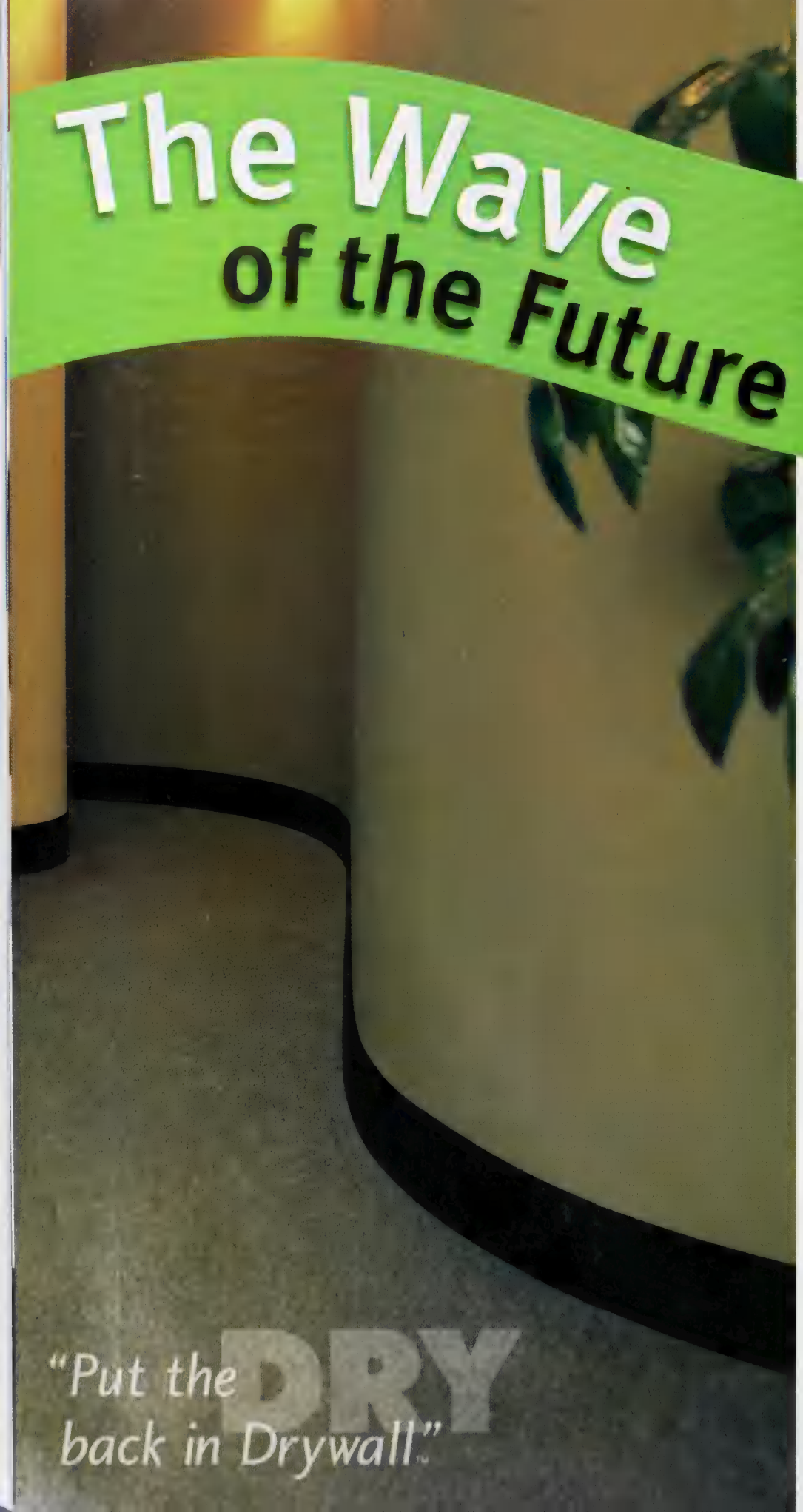
Herman Miller had several introductions this year, including the Caper multitask chair, featuring a perforated polypropylene seat and back with contoured surfaces and adjustable controls. The redesigned Ethospace system, first developed in 1984, now offers a lighter appearance and new structural components to increase workspace flexibility. The heart of Ethospace is a new system of stacked zones that support power functions at the foundation level, mid level, and upper level. The Avio table system, designed by husband and wife team Lisa Bottom and John Duvivier, is height adjustable; comes in rectangular, corner, and curvilinear work-surface shapes; and can support shelves, whiteboards, tackboards, and overhead storage. 888/443-4357. Herman Miller, Zeeland, Mich. **CIRCLE 288**



288







NEW Flextek™ Gypsum Board from BPB Celotex

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Furnishings

Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating ▪ Healthcare/school/library/hotel furniture ▪ Systems furniture

Evolving furnishings

The Reef Collection, designed by Piero Lissoni, offers an assortment of armchairs and sofas. The sofa is available in three widths and offers two different back positions, while its accompanying oversize armchair swivels 360 degrees. 800/770-3568. Cassina U.S.A., Huntington Station, N.Y. **CIRCLE 289**



289

Elevated living

Designers can create custom lofts for the preschool, classroom, or library reading area with Gressco's ADA-compliant HABA loft system. Also from Gressco is the HABA solid beechwood Platform system, with durable dowel construction. Platform is covered with carpet and is available in different heights and shapes, including mountains, valleys, bridges, and ramps. 800/345-3480. Gressco, Waunakee, Wis. **CIRCLE 290**



290

Mobile storage

The new Traversa line of storage shelves and cabinets increases filing and shelving capacity by up to 40 percent while also offering a flexible alternative to permanent installations with its track-and-floor system. 877/410-0035. Traversa, Fort Atkinson, Wis. **CIRCLE 291**



291



Cool stool

The adjustable-height stool Zanzibar, designed by Raul Barbieri for Rexite, may be the next ubiquitous stool for the home, office, or bar. Thanks to a gas-lift mechanism, the height is easily adjusted by pressing any one of the three colored buttons. Zanzibar comes in six colors, has an ergonomic polymer seat to encourage correct posture, and a leg and base in chromium-plated steel. 39 029 0390013. Rexite Spa, Cusago, Italy. **CIRCLE 292**



292

Back friendly seating

Two new products from Steelcase help relieve back pain at work. Lean Too takes the weight and strain off of the lower spine, legs, and torso of people required to stand while working. The Cachet chair, available in two versions, allows individuals to recline gently with the new balanced action bar. 888/STEELCASE. Steelcase, Grand Rapids. **CIRCLE 293**



293



Furnishings

Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating • Healthcare/school/library/hotel furniture • Systems furniture

Singular chaise

LCP, a new chaise longue by Maarten van Severen, represents the first in a series of collaborations between Kartell and the Belgian designer. The soft elastic design produced in a single polycarbonate mold is completely transparent and is available in five colors: crystal, blue, brown, green, orange, and gray. 212/625-1419. Kartell U.S.A., New York City.

CIRCLE 294

294



Getting light to work

The Screen Plus sunshade offers two levels of solar protection, although it is woven from a single piece of material. The upper section of the blind allows 22 percent of the outside light to pass through, while the lower section provides increased filtration. 33 0472 444000. Hexcel Fabrics, Cedex, France. CIRCLE 295



295



Stack in style

A Best of NeoCon Gold Award winner, Rhythm by Stylex is distinguished by its ergonomic design and assortment of color options, which include translucents. The new design also offers a selection of new options, including roll-away casters for easy mobility. 800/257-5742. Stylex, Delanco, N.J.

CIRCLE 296



296

Seeing RED

To meet the needs of fast-growing small businesses and their culture, Herman Miller didn't merely create a new product but an entire new division. Positioned as a middle point between store-bought, ready-to-assemble furnishings and more expensive contract furniture, Herman Miller RED can be on the job in about a week. The collection will come with an assortment of accessories to provide cable management, storage, and privacy. 616/654-3000. Herman Miller, Zeeland, Mich. CIRCLE 297

297



Nature meets technology

The new Provenance woven wood shades from Hunter Douglas offer 11 new styles in bamboo, grass, reed, and wood slats and an opacity system that uses micropleated shades to provide a variety of light-filtering options. 800/937-STYLE. Hunter Douglas, Bloomfield, Colo.

CIRCLE 298



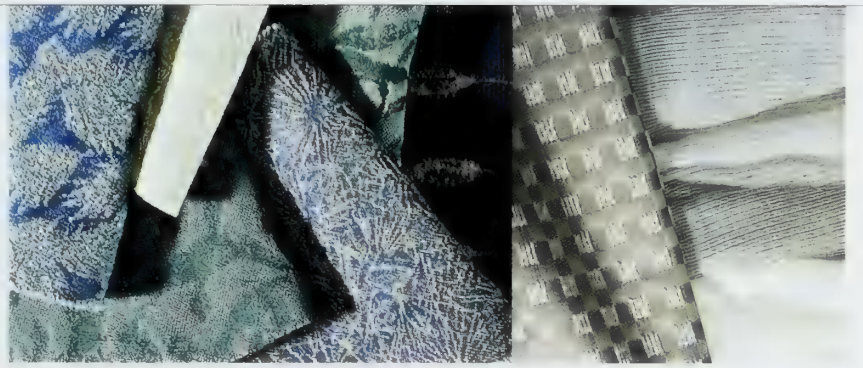
298

Furnishings

Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating • Healthcare/school/library/hotel furniture • Systems furniture

Blossom inspiration

Inspired by the work of German photographer and plant collector Karl Blossfeldt, Pallas introduced a new line of fabrics designed by Lori Weitzer. The "Ode to Blossfeldt" collection (left) features four styles of Crypton-treated textiles, repellent against liquid, moisture, and bacteria. The window treatments in the Contours fabric collection (right) include Quadrare, a sheer casement constructed of 100 percent Trevira CS and Cubido, a wool/polyester blend. 800/4-PALLAS. Pallas Textiles, Green Bay, Wis. **CIRCLE 299**



299

Nap time, revisited

Ypsilon's mechanics allow a smooth transition when sinking back from the upright into the lounging position. It also features a Techno Gel Pad that provides lumbar support and an integrated coat hanger. 212/539-1900. Vitra, New York City. **CIRCLE 300**



300

Sleep on the go

KI introduces the ADD Sleep Chair designed by Roger Kenneth Leib. Simply pull the lever, and the armchair transforms into a bed. 800/424-2432. KI, Green Bay, Wis. **CIRCLE 301**

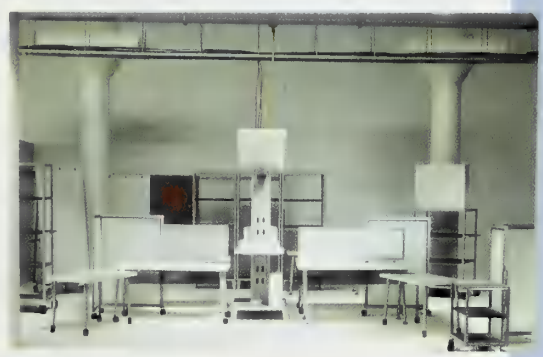


301



Taking utility to the next level

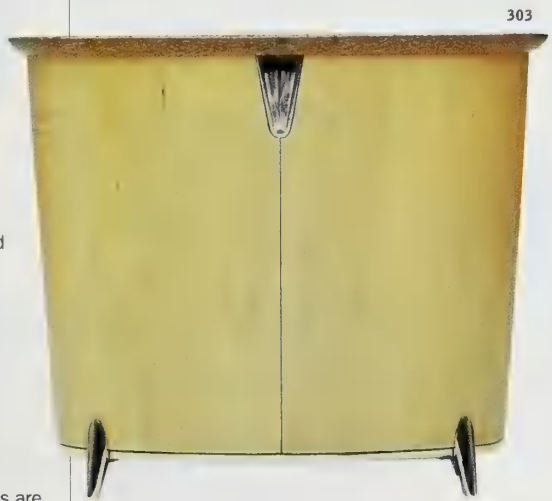
The Utility Two Collection of office components, designed by Brian Graham and Brian Kane, offers a selection of useful features, including height-adjustable legs, casters, shelving units, and privacy screens. 800/888-4693. Howe Furniture, St. Louis. **CIRCLE 302**



302

It's a pair

The MoJo Table series, by Tom McHugh, includes two table designs, Mo and Jo, available in a number of shapes, sizes, and wood surfaces. A new composite material made from sunflower-seed shells is available for the table surface. 800/724-5665. Keilhauer, Toronto, Ontario. **CIRCLE 303**



303

Stack 'em up

Dauphin's Eddy stackable chair by Design Office offers a writing-table arm that does not have to be removed before stacking. The chairs are available in an assortment of colors with a choice of a black powder-coat or chrome-plated frame. 800/995-6500. Dauphin, Boonton, N.J. **CIRCLE 304**



304



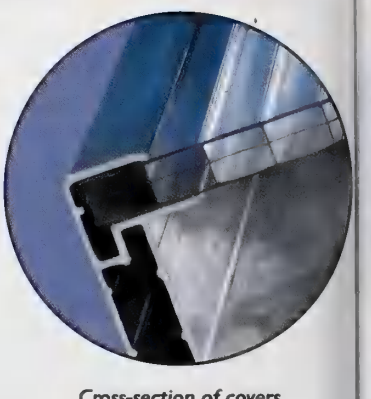
New From Bilco

The Lumivent™

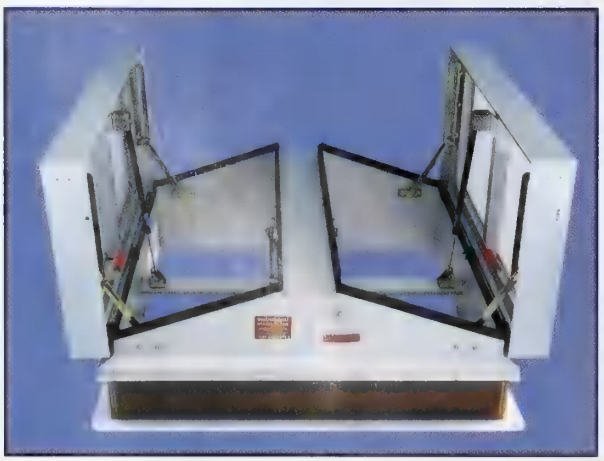
Bilco has re-engineered its domed fire vent to provide a new low profile cover design and to enhance its thermal insulation. The Lumivent™ gives you natural daylight, energy efficiency, and the protection you need as well as the performance you expect from Bilco — all at competitive pricing.

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Cross-section of covers



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Offering a 4-stop vertical rise is a breakthrough in the holeless product line. We see more clients demanding holeless hydraulic installations to avoid risks of soil contamination. —*STEPHEN D. EMPIE, AIA, SCI*

Metallic soak

Diamond Spas' hand-fabricated, self-standing, circular stainless-steel Japanese soaking bath (top) and full-skirted copper ellipse soaking bath (bottom) are available in whirlpool, self-rimming, or undermount models. 800/951-7727. Diamond Spas, Broomfield, Colo. **CIRCLE 305**

Steamier baths

Kohler's Steam Generator Kit disperses steam evenly, reducing hot spots. The unit's steam head protracts from the wall when it is heating and retracts when it is not in use. 800/4-KOHLER. Kohler, Kohler, Wis. **CIRCLE 306**

Powerful shade

The pre-engineered 1600 Powershade sunshade system reduces solar heat gain, generates solar power, and reduces energy use. Its design allows for efficient, cost-effective recycling upon disassembly. 877/767-9107. Kawneer, Norcross, Ga. **CIRCLE 307**

Fourth floor, lingerie

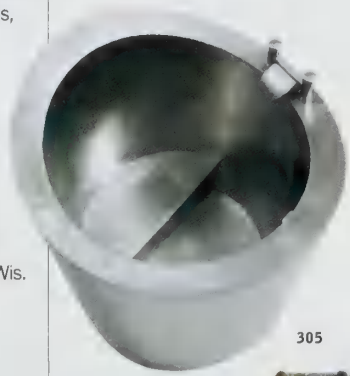
Schindler's 330A elevator features a design that eliminates the below-grade jack-hole, expanding the company's holeless hydraulic offering to 2-, 3-, or 4-stop configurations. 973/397-6500. Schindler Elevator, Morristown, NJ. **CIRCLE 308**

New horizons

The Sok overflowing bath puts bathers at eye level with a pane of water that continuously spills over the tub's rim into a water channel and is recirculated back into the tub, conserving water. 800/4-KOHLER. Kohler, Kohler, Wis. **CIRCLE 309**

Earthquake insurance

Slenderwall protects against seismic shock by isolating the exterior precast concrete skin from the building frame. The panels are a lightweight alternative to conventional precast. 800/547-4045. Easi-Set Industries, Midland, Va. **CIRCLE 310**

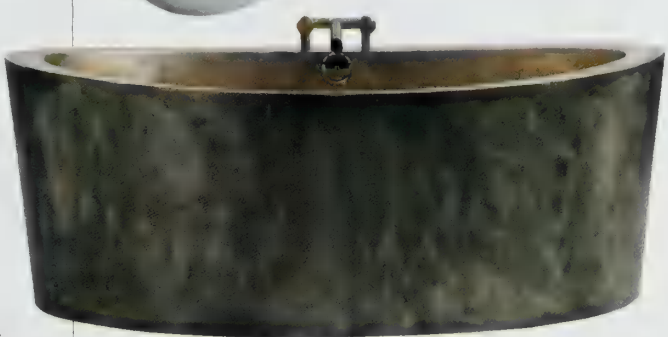


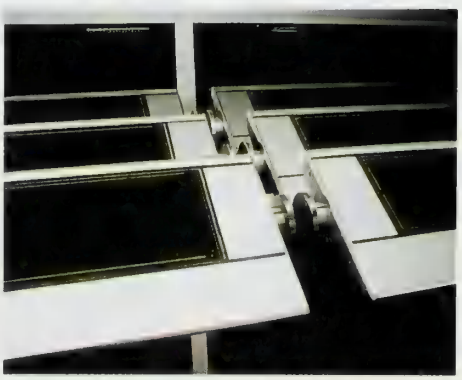
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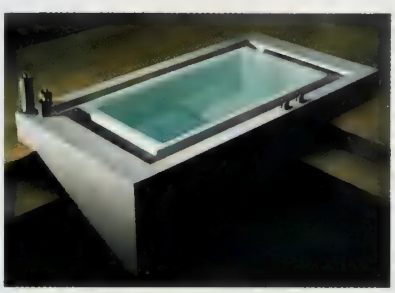




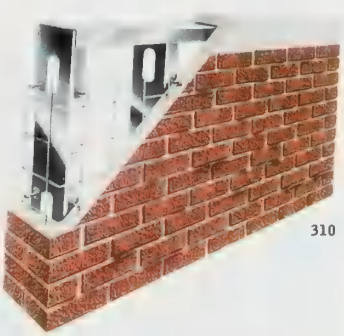
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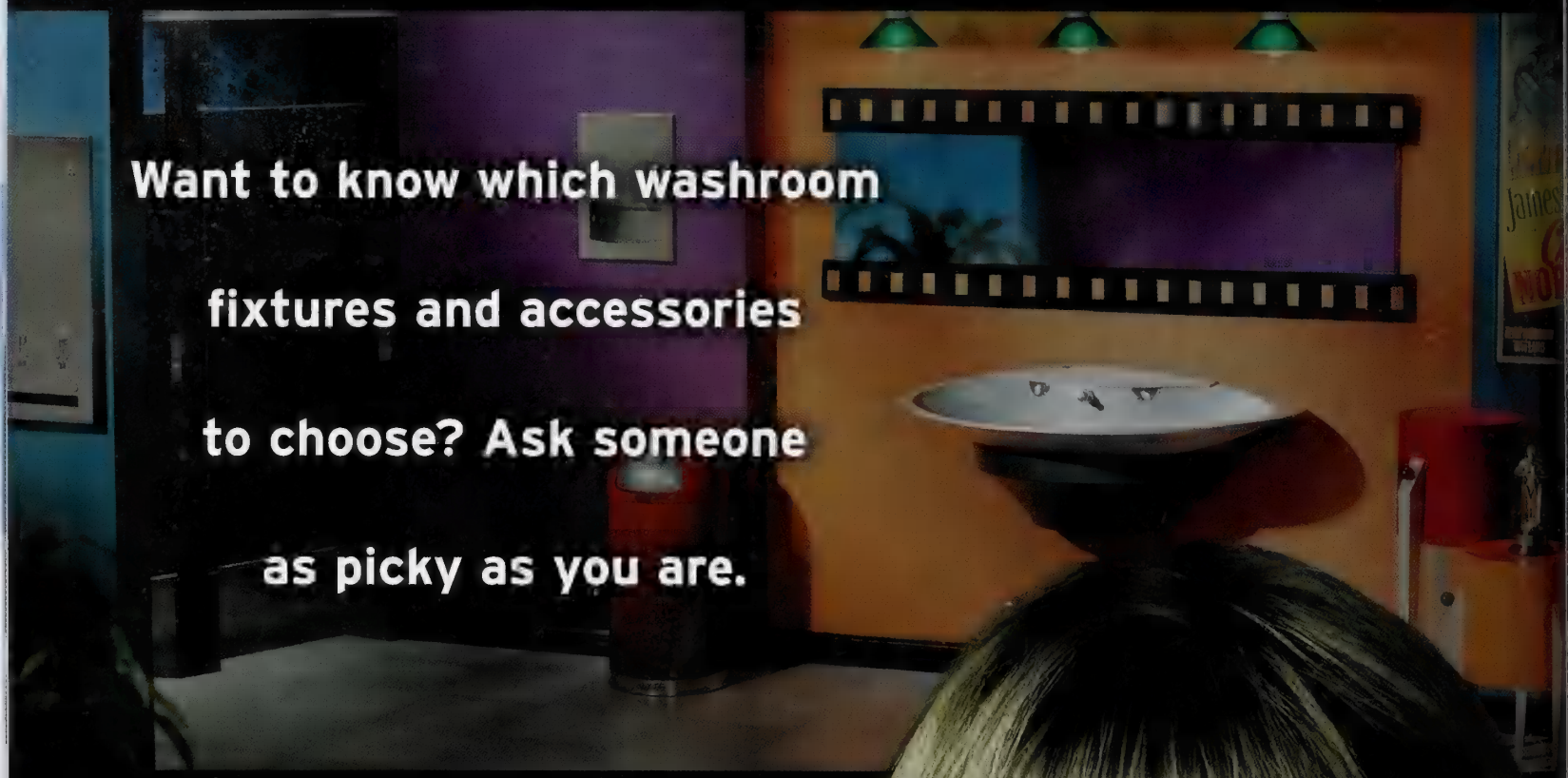


309



310





Want to know which washroom fixtures and accessories to choose? Ask someone as picky as you are.



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Mechanical

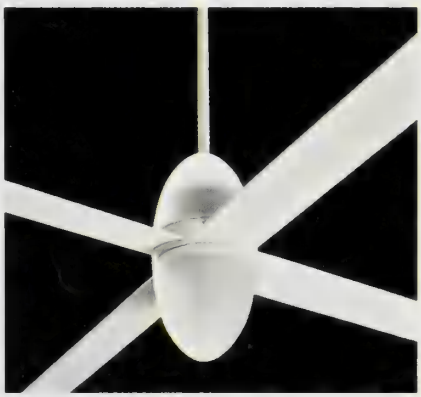
Duct insulation • Plumbing fixtures • Fittings, trim & accessories • Heating, ventilating & air-conditioning equipment • Air distribution



Whirlybird by The Modern Fan Company has a graceful design for a normally clunky fixture. *—DAVID ALTENHOFEN, AIA, CSI, CCS*

Translucent fans

The Modern Fan Company introduces Whirlybird, designed by architect Laurinda Spear, FAIA. Whirlybird's translucent body, made entirely of hand-blown glass, is available in white or clear frosted finishes. 888/588-3267. The Modern Fan Company, Ashland, Ore. CIRCLE 311



311

Make a splash

Duravit offers the Vero rectangular washbasin as an alternative to ordinary bathroom furnishings. Also from Duravit is architect Norman Foster's new collection of elegantly proportioned Minimalist ceramic fixtures. 888/DURAVIT. Duravit, Duluth, Ga. CIRCLE 312



312

Spinning shower

Moen's Revolution massaging showerhead takes ordinary water, spins each drop, and then twirls the entire stream. The increased speed in movement leaves the impression of warmer water, higher flow, and higher pressure. The controls are conveniently located at the bottom of the showerhead. 800/BUY-MOEN. Moen, North Olmstead, Ohio. CIRCLE 313



313



Smart sinks

Hansgrohe's Axor Starck Electronic Lav Mixer, designed by Philippe Starck, is an ADA-compliant, stainless-steel faucet. The mixer features battery-operated infrared sensor technology, making it suitable for public rest rooms and office buildings. 678/762-6910. Hansgrohe, Alpharetta, Ga. CIRCLE 314



314

Solve drafty dilemmas

The KE-Inject Ventilating System's new patented orifice design eliminates stagnant air and draft problems by using the entire injection duct as a long delivery unit. The system is suitable for rooms up to 20 feet in height. 877/229-0695. KE Fibertec, Oro Valley, Ariz. CIRCLE 315



315

Mechanical

Duct insulation ▪ Plumbing fixtures ▪ Fittings, trim & accessories ▪ Heating, ventilating & air-conditioning equipment • Air distribution

Tech toilet

TOTO's new Jasmin Washlet offers several technologies, including warm-water spray; pulsating, massagelike water flow; an LCD control panel; and a battery-operated remote control. 770/282-8686. Toto, Morrow, Ga. **CIRCLE 316**

Faucet for your palm

The new Galileo electronic faucet will review diagnostics and perform field maintenance from your handheld palm. 847/803-5000. Chicago Faucet Company, Des Plaines, Ill. **CIRCLE 317**

HVAC liner

The new HVAC system ToughGard Duct Liner repels moisture and provides acoustical performance with its EPA-registered, antimicrobial-enhanced surface. 800/233-8990. CertainTeed, Valley Forge, Pa. **CIRCLE 318**

Forget your jacket?

Vanguard introduces its Easy Angle Patio Heater, which features up to 50 percent fuel savings and up to an 11-foot heating radius. 800/432-2382. Vanguard, Bowling Green, Ky. **CIRCLE 319**



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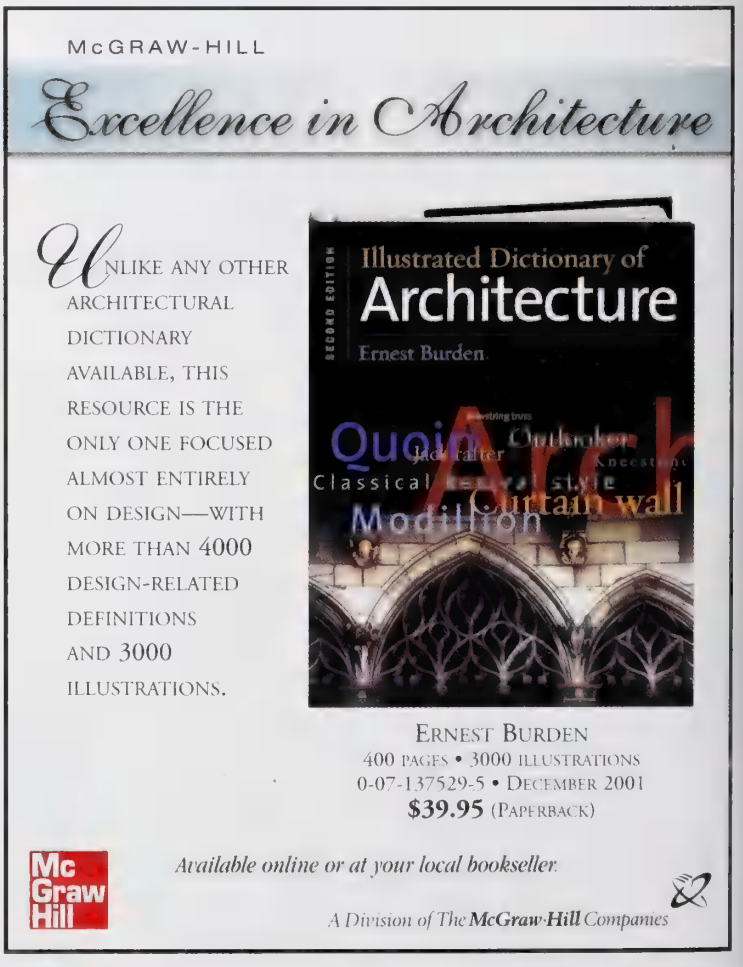


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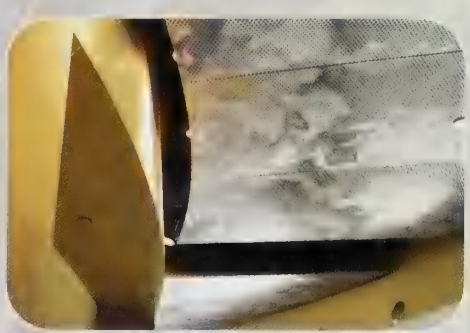


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Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications • Ballasts



The Lastra chandelier from Flos is an elegant decorative fixture that expresses the lighting circuitry like a computer chip. The design takes an innovative leap in form and function. —KATHY CHIA

Lighting the path

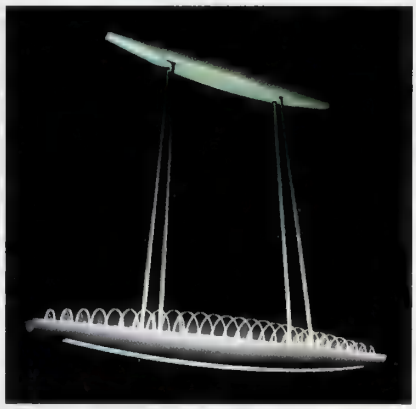
Stealth is a compact 2¾", square recessed step and path light designed for either fiber-optic or LED sources. Stealth features a deeply recessed slot aperture for controlling glare. 800/879-9797. Lucifer Lighting, San Antonio. CIRCLE 320



320

Sculptural light

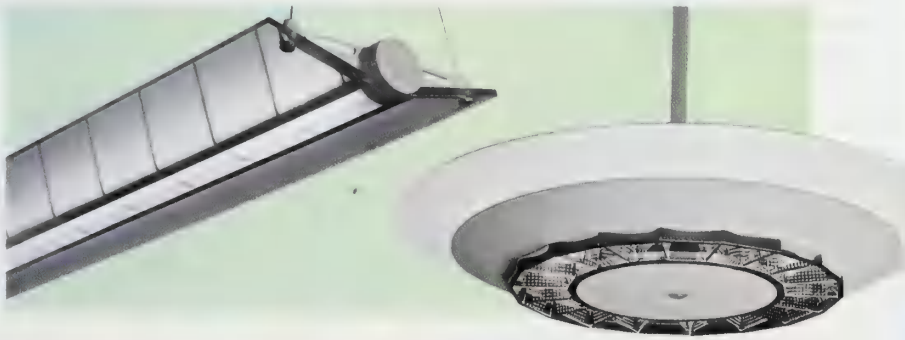
The suspension system in the Aliante light fixture gives the appearance that its curving aluminum body is floating. Light is distributed evenly from the top of the fixture through a patented technology of 26 graduated semi-opaque louvers. 215/830-1408. Ivalo Lighting, Willow Grove, Pa. CIRCLE 321



321

Sensible lights

The winners of Best New Product of the Year and Energy Product of the Year at the 2001 Lightfair were MesoOptics (left), a new form of optical-control materials made with holographic techniques; and Ergolight Discus (right), which features energy management such as daylight sensors. 604/888-6811. Ledalite Architectural Products, Langely, British Colombia. CIRCLE 322



322

Signs of the times

The RoomWizard by Steelcase provides offices with one of the first Web-based information appliances for display at meeting locations. The RoomWizard can be placed outside of each conference room and connects to an organization's network, allowing people to review and reserve meeting space from wherever they have computer network access. 888/STEEL-CASE. Steelcase, Grand Rapids. CIRCLE 323



323

Adjustable street light

The Flex lighting fixture is named after its multiple arm designs and mounting options. Flex is composed of a lamp, ballast, and post top module linked together by two stainless-steel arms. 714/994-2700. Architectural Area Lighting, La Mirada, Calif. CIRCLE 324



324

Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications

Conversation piece

The Star•Led mobile lamp can be used as a centerpiece in lieu of a candle or flower arrangement. Star•Led has an aluminum body and polycarbonate head and runs on eight white-light LEDs powered by batteries. 212/989-6265. Luceplan USA, New York City. CIRCLE 325

Yellow brick road

Paver features a rugged plastic casing with a frosted tempered-glass lens that is illuminated by Optiance Englow cable lights. Paver can be easily mounted within a variety of paving-stone configurations, concrete pour, or wall-stone applications. 912/924-8000. Cooper Lighting, Americus, Ga. CIRCLE 326

Circuit-board chandelier

The electric current to each individual fixture on the other-worldly Lastra chandelier is distributed by silk-screened flat wire with a protective ceramic coating over tempered glass. Lastra includes six to eight 35-watt MR11 halogen lamps in white glass. 800/939-3567. Flos USA, Huntington Station, N.Y. CIRCLE 327

Ceramic metal halide lamps

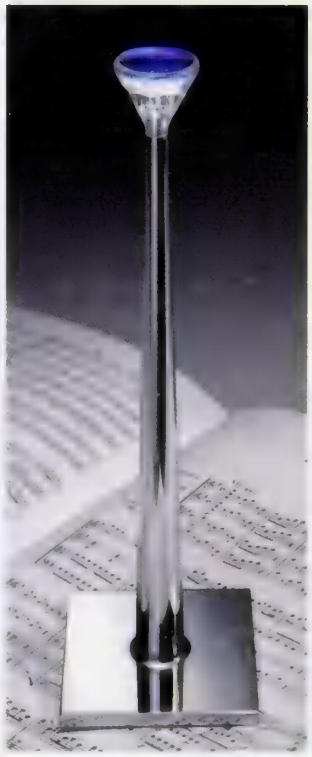
The design of the MH-T6 downlight incorporates metal-halide technology with a reflector and lens that offer controlled distribution of light for energy efficiency. MH-T6 has a lamp life of 10,000 hours, making it ideal for retail applications, atria, and other spaces with high ceilings. 800/932-0633. Zumtobel Staff Lighting, Highland, N.Y. CIRCLE 328

Together at last

The Vista series allows architects and designers to incorporate full data/communications and power into any space. Two end channels contain wires and support a decorative center panel of solid metal, perforated metal, glass, and wood and metal laminates. 860/233-6251. The Wiremold Company, West Hartford, Conn. CIRCLE 329

Coloring space

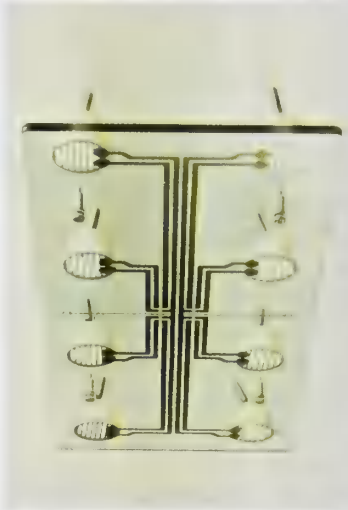
The iColor Fresco (left) uses LED-based Chromacore to create color-changing lighting effects; its underwater counterpart is the C-splash (center). At the controls is the iPlayer 2, which stores show sequences at the push of a button. 617/423-9999. Color Kinetics, Boston. CIRCLE 330



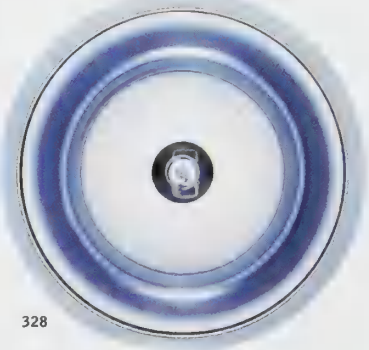
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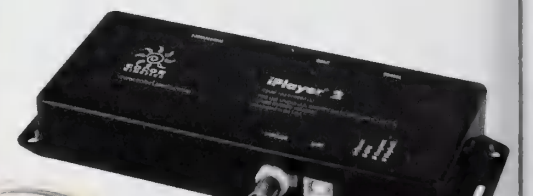


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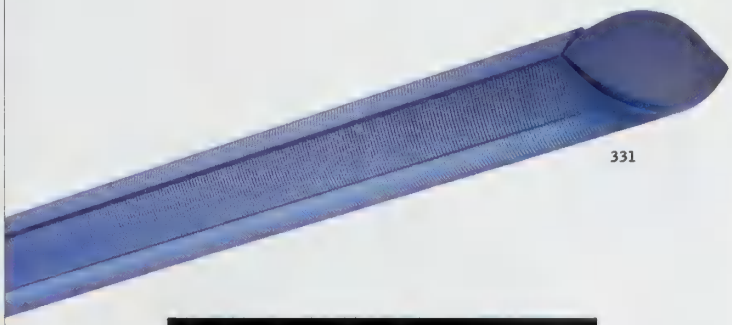
Electrical

Wiring devices ▪ Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting ▪ Underwater lighting • Dimming control • Communications

"Perfy" fluorescence

Litecontrol introduces the new "all-perf" design in two styles with a rounded-edge cap detail. Videre offers a choice of T8 or T5HO lamping in a two-lamp design for flexible luminary requirements. 781/294-0100. Litecontrol, Hanson, Mass.

CIRCLE 331



331

Cabinetry chic

The Slique T2 undercabinet lighting system is an ultra-compact fixture that packs in powerful illumination. Its small size (¾" x 1¾") makes it discrete without becoming ineffective. 847/451-0700. Alkco Lighting, Franklin Park, Ill.

CIRCLE 332



332

House lighting

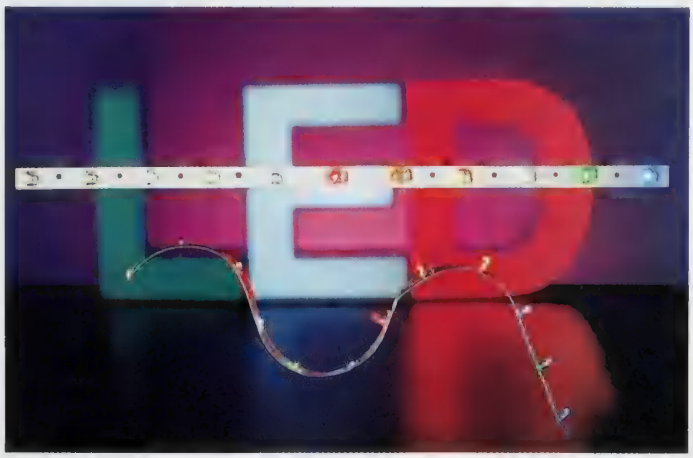
HomeTouch Wall Modules replace a residence's preexisting switches and dimmers with computer-programmed timed settings. The Timer Module can control 112 timed events. 888/LITETCH. LiteTouch, Salt Lake City. CIRCLE 333



333

Directional lighting

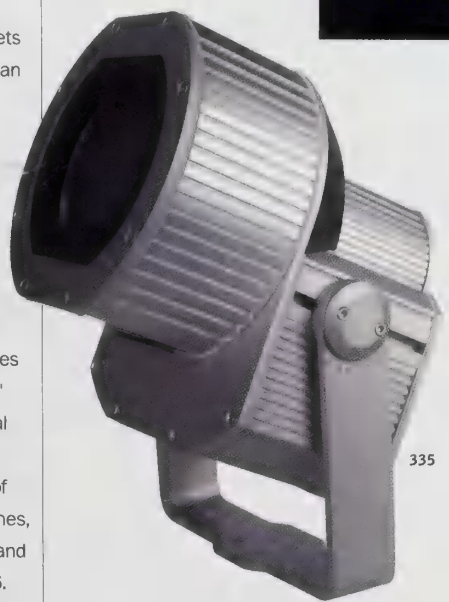
LED Light Strip modules by Ledtronics provide energy-efficient lighting for applications such as emergency lighting, showcase-cabinet lighting, and task lighting. LED Light Strips run on 12-volt systems and are available in all LED colors and lengths up to 27 inches. 310/534-1505. Ledtronics, Torrance, Calif. CIRCLE 334



334

Outdoor coloring lights

The Martin Exterior 200 brings all facets of color, adjustability, and control into an outdoor-resilient casing. Built-in sensors and memory presets provide independent functioning. 954/858-1800. Martin Professional, Sunrise, Fla. CIRCLE 335



335

Lighting detail innovations

It is possible to dim smaller T5HO fixtures with Lutron's expanded T5HO Hi-lume ballast line. The ballast features a physical cross section that is only 1" high x 1.18" wide, which makes it ideal for one- and two-lamp slim-profile fixtures. Satin Colors (bottom) is a line of color-matched preset dimmers, switches, receptacles, window-shade controls, and cable TV phone jacks. 800/523-9466. Lutron Electronics, Coopersburg, Pa.

CIRCLE 336



336

Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications

Buried power source

Underground is Fiberstar's newest fiber-optic illuminator for outdoor environments. UL-rated for direct burial applications, Underground requires no ventilation to the burial box, simplifying landscape installations. 800/327-7877. Fiberstars, Fremont, Calif. CIRCLE 337

This way to leave

Sure-Lites TRX Self-Luminous Exit features phosphor-coated sealed tubes filled with Tritium gas that create illumination without electrical wiring, energy, and maintenance costs. They are vandal-proof and can resist hazardous, humid, and other harsh environments. 770/486-4800. Cooper Lighting, Peachtree City, Ga. CIRCLE 338

International sensation

Sensor Switch claims that its International Occupancy Sensor, used by the U.S. State Department at the Embassy in Laos, will work where no other sensor will. The passive infrared unit operates on any voltage or frequency available worldwide and requires only two wire connections. 800/727-7483. Sensor Switch, Wallingford, Conn. CIRCLE 339

Get back on track

The Addressable Track Module System (ATOM) allows for the individual dimming and switching of track lights. ATOM provides up to seven programmable scenes, plus time delays and fading and cycle effects, by grouping fixtures on the same or separate circuits. 508/679-8131. Lightolier, Fall River, Minn. CIRCLE 340

The angle of light

To illuminate large wall surfaces, the Vertical Surface Illuminator (VSI) projects a 180-degree band of light from its patented optical system. Since the light source is from the same surface, the end result has low glare and minimal light pollution. 805/684-0533. Bega US, Carpinteria, Calif. CIRCLE 341

Flexibility in ballasts

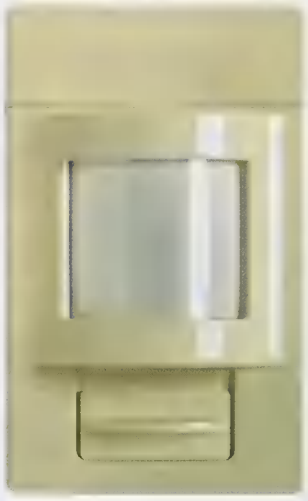
New ballasts for compact fluorescent lamps include the C242UNV, operating on a variety of lamps in the 22- to 57-watt range. Features include auto-reset and shutdown and rapid starting. 800/BALLAST. Universal Lighting Technologies, Nashville. CIRCLE 342



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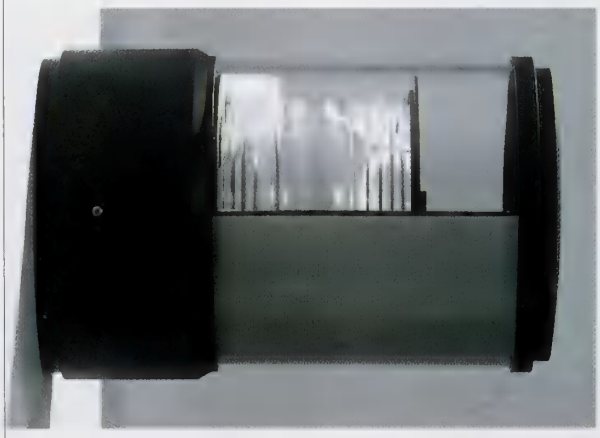
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342



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Daniel Boulud, Chef/Owner
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Café Boulud,
db bistro moderne

"SeeTouch is perfectly simple. It requires no training. Just a look and a touch, and the perfect light settings are recalled. Plus with the wireless capability, our users will have control from anywhere in the ballroom."

Dan Wilcox
Audio-Visual Manager
Wyndham Orlando Resort

"SeeTouch makes complex lighting configurations simple to use. Any professor can enter any lecture hall and have intuitive mastery of the lighting."

Glenna Falk
Manager, Multimedia Classrooms
NC State University





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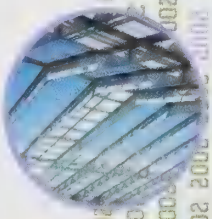




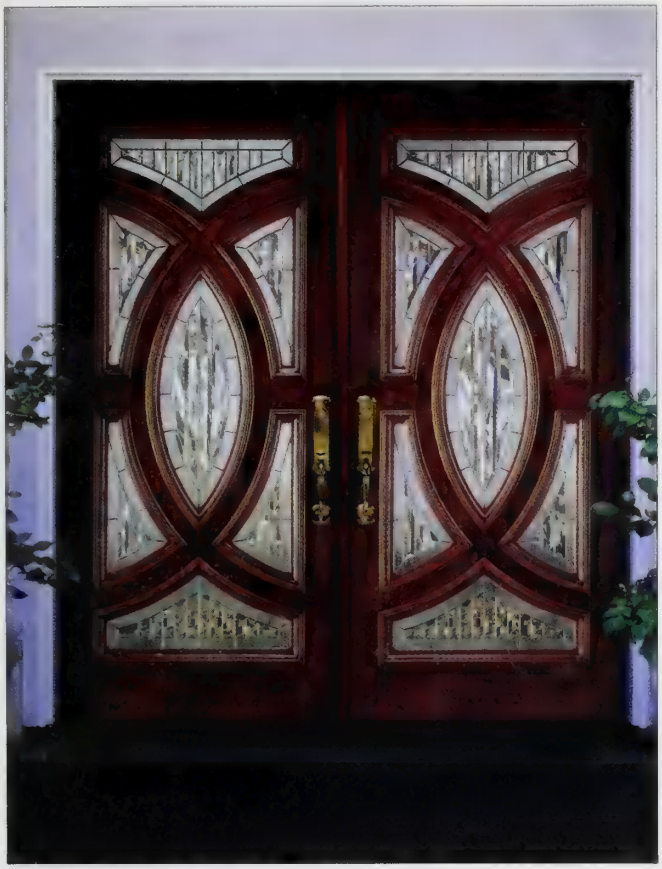
PRODUCTS ARE INTEGRAL TO THE REALIZATION OF ARCHITECTURAL DESIGN.

ON THE FOLLOWING PAGES, ARCHITECTURAL PRODUCT AND MATERIAL MANUFACTURERS CELEBRATE AND SHARE THEIR PRODUCTS, PLANS AND VISIONS FOR 2002 WITH ARCHITECTURAL RECORD READERS.

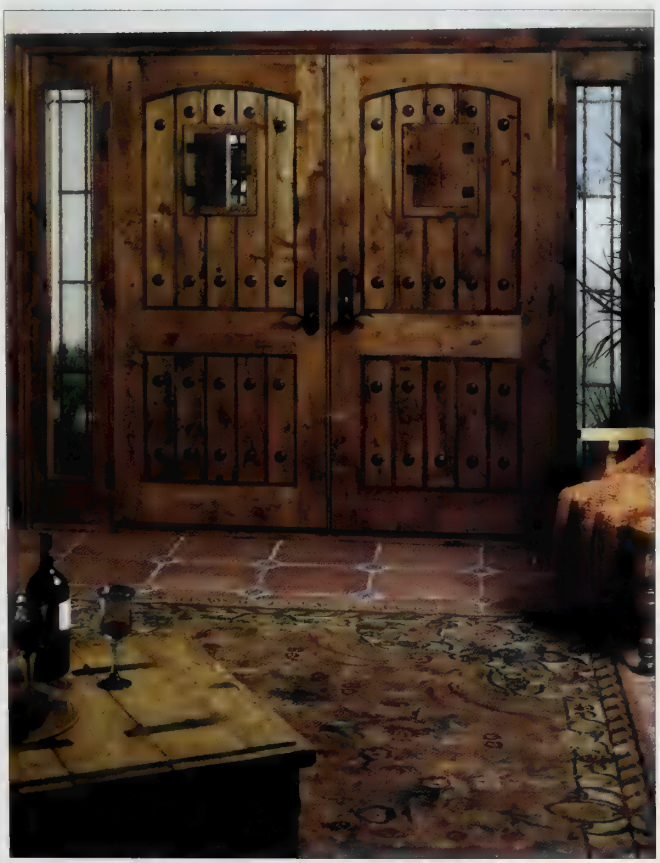








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To create a realistic appearance of wood, Aurora doors begin with molds cast from IWP's finest hardwood doors. IWP then integrates their patented Strata™ Technology, a process in which multiple layers of resin, tints, base colors and reinforcing materials are permanently bonded to give the door the natural coloration of wood and an illusion of depth. Aurora doors are offered in three woodgrain textures: oak, mahogany and paint surface. Finished Aurora doors have the same silky feel – and the same weight – as wood, with a variety of sizes, styles and glass options to choose from.

Aurora doors can be installed in virtually any location because their installation is made easy – Aurora doors come pre-hung and prefinished.

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The esteemed IWP® Estate Door Collection™ provides homeowners with custom hardwood entry doors in various "old world" styles. This IWP collection provides homeowners with a wide array of custom entry doors, designed to complement a variety of home architectural styles ranging from Craftsmen and Tudor to Southwestern and Mediterranean.

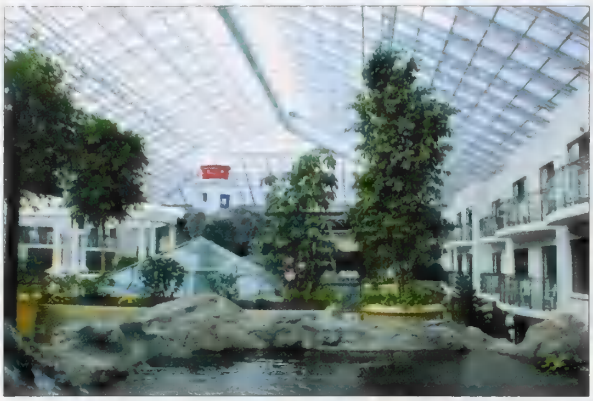
This door line was designed with multiple options for mixing and matching – to complement all architectural designs. Each Estate door presents the customer with tremendous options: door shapes including flat, Gothic, segmented and radius tops are available. Customers can also choose a custom finish and one of twenty-three color options. Finish options include: smooth, heavy-textured wire brush, hand-hewn or a distressed finish, and each allows for maximum personalization of every custom door.

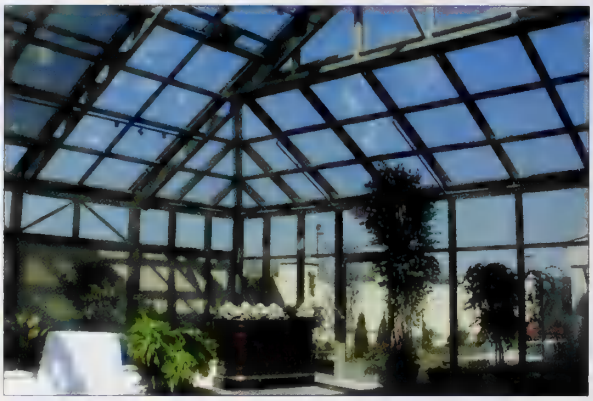
Every Estate door is hand-built from solid wood in either clear or knotty alder, and many styles are available with a choice of decorative door accents. Perfect complements to the handcrafted simplicity of each door, accent options include wrought iron door and sidelight grilles, speakeasy doors and oversized, decorative nails called clavos. These metal options are available in dark or rust patina and provide design-enhancing details that have been specially selected for the Estate Collection.

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OPENAIRE INC.



Retractable Roof Enclosures and Operable Skylights...Open Up to the Possibilities!

New and exciting design opportunities are now possible by combining your unique design ideas and OpenAire's success with operable skylights and retractable roof enclosures. Since its inception, OpenAire has been designing, manufacturing and selling the finest retractable roof enclosures and operable skylights available on the market. Initially most projects focused on pool enclosures and sport facilities, however the project scope has since grown and now includes custom design installations such as atriums, patios, restaurants, wellness centers, natatoriums, waterparks, zoos, observatories and domes as well as other unique design applications. With numerous corporate and residential contracts, OpenAire is rapidly expanding internationally with projects that include North America, England, Europe and the Middle East.

OpenAire's in-house Design department works with architects, engineers, builders and property owners to custom design the operable skylights and retractable roof enclosure for each specific application, in addition to preparing shop drawings. The structures are manufactured by OpenAire and only materials of the highest quality are used. Each project is installed on site by a trained and select crew.

DESIGN FEATURES

The OpenAire system features motorized roof panels that retract to open up to 50% of the roof area letting in natural light and fresh air thus providing "indoor-outdoor" versatility. There are rain sensors to close the roof automatically. Highlights of key design features are:

- *an exclusive maintenance-free thermally broken aluminum framing system*
- *thermal breaks and vapor barriers reduce condensation caused by heat loss to the exterior*
- *operable skylights and retractable roof enclosures capable of spanning large distances up to 100 feet (32 meter) and maintaining a deflection of L/180*
- *system availability in ridge and single slope design*
- *roof and sidewall glazing options that include 1 inch (approx. 25 mm) insulating glass, 1 inch (approx. 25 mm) quintuple wall polycarbonate*
- *for enhanced protection and aesthetics, OpenAire offers a rainbow selection of custom paints in PPG Duracron, Duranar or Acrynar*

ADDITIONAL PRODUCT BENEFITS

- *OpenAire enclosures increase the use of facilities by creating year-round atmosphere great for new or existing construction, and for commercial or residential properties*
- *custom design solutions*
- *proven performance in worldwide climates*
- *highly efficient and cost effective design*
- *"one-stop-shop" - comprehensive customer support, from design start to installation finish*
- *installed worldwide by trained, select crews*
- *OpenAire's extended warranties*

IN SUMMARY

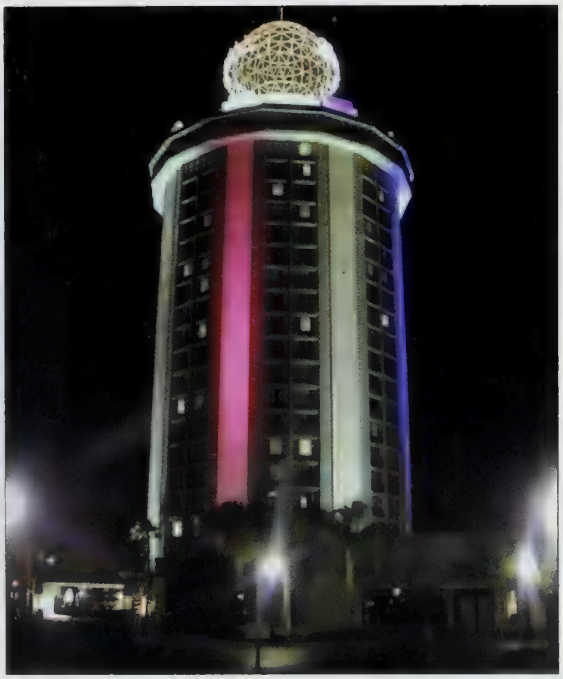
Over the years, other manufacturers have tried to match OpenAire's structural quality and performance, but their "proprietary" imitations have failed to capture the integrity, reliability and aesthetic beauty of OpenAire enclosures. Pride, quality and aesthetics are indeed the drivers of OpenAire's success.

OpenAire

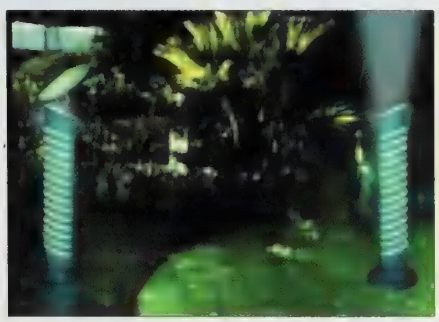
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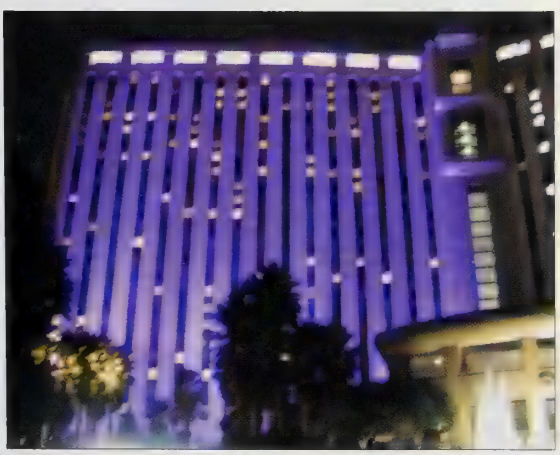
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Email: openaire@openaire.com

CIRCL 131 ON INQUIRY CARD









SPACE CANNON ILLUMINATION, INC.

Space Cannon Electronic Engineering, is a leading producer of architectural and promotional lighting who designs lighting products to add and enhance any interior, exterior and landscape project in today's marketplace.

Beginning 15 years ago in the Xenon searchlight business, Space Cannon Electronic Engineering produced the standard white light mechanical fixtures. In 1997 Space Cannon broke technology by producing these same fixtures with colored dichroic tubes that painted the nighttime skies in a rainbow of colors.

Along with this technology Space Cannon also introduced a complete line of automated fixtures beginning at 1000 watts and going up to 10,000 watts of luminous power.

The worldwide patented dichroic color mixing was a sure winner in the lighting industry, the never fading colors left Space Cannon's competitors in the dust fighting with heat sensitive gels.

Coloring the light before it is reflected had the lighting industry amazed. The color mixing is achieved with a series of 3 tubes each one fitting into the other using the secondary colors of Cyan, Magenta and Yellow. However if the requirement calls for special corporate colors, Space Cannon can custom dip these dichroics to meet the needs of the project.

Shortly after the explosion of Space Cannon color the company took this concept and began an architectural line with the same technology using a short arc Metal Halide lamp beginning at 1200 watts.

Much to the pleasant surprise of Space Cannon this market opened many new and exciting doors not to mention the opportunity to work with some of the leading Lighting Designers and Architects in the world.

Unfortunately there was still a market and clientele we could not capture and that was for the projects that required illumination but not at the output of 1200 watts. So with this demand Space Cannon went off once again and created a complete line of low wattage fixtures beginning at 150 watts and continuing upwards to include 250 watt, 400 watt, 575 watt and 700 watt fixtures.

At the latest Lighting Dimension Trade show this year, Space Cannon launched their interior 250 watt color changing fixtures, the Diemos and the Phobos; plus the Heligarden a 250 watt fixture designed strictly for landscape illumination available in either clear or color.

The complete range of Space Cannon architectural products have several options to choose from, such as clear or color, strobe, shutter or dimmer.

All of Space Cannon's architectural fixtures are designed for outdoor applications for use in the worst environmental conditions. The majority of these units have onboard computers for manual control plus having the capability of controlling them by DMX.

A built in zoom optical system is fitted in several of our fixtures for a dynamic control of beam spreads ranging from 3 degrees up to 90 degrees.

If you are ecologically concerned, Space Cannon has also provided our clients with the option of dichroic reflectors, which absorbs the UV and infrared rays. As well all Space Cannon fixtures are ETL approved.

We at Space Cannon Illumination look forward to yet another exciting journey this upcoming year of even more extreme and fascinating growth.

As the exclusive North American distributor it will be our pleasure to work with you on your existing and future projects. With Space Cannon technology we can ensure your artistic dreams become a reality.

space cannon ILLUMINATION INC NORTH AMERICA

For more information, contact:

Space Cannon Illumination, Inc.
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ARXX™ BUILDING PRODUCTS

Building Walls With Integrity

As a growing number of architects and builders recognize the need for building safe structures while meeting time demands and saving energy, interest in alternative building methods and materials is on the rise. This interest has created worldwide market opportunities for Arxx Building Products, North America's leading manufacturer of insulated concrete forms (ICFs). Arxx Building Products, based in Cobourg, Ontario, utilizes ICF technology as an integral part of its Arxx High Performance Wallsystem. Last year the company supplied close to 65 million square feet of its Arxx Wallsystem for commercial, industrial, institutional and residential structures.

"We've developed not only a full product line of concrete forms, but a whole new approach to building quality wallsystems," said Laurie Cook VP Operations. "And we provide unmatched technical support every step of the way." Although ICFs have been in existence for several years, Arxx has taken this building technology to a new level, offering a stronger, safer wallsystem that is easy to install.

So what is intriguing architects throughout North America and overseas about the Arxx Wallsystem? Convenience, unlimited design possibilities, faster installations that come in on-schedule, on-spec and on budget--to coin a phrase, walls with integrity. Arxx has developed a wallsystem with a unique five-in-one construction system. Formwork and structure, vapor barrier, air barrier, insulation and strapping are installed with one single product. These forms remain in place and become an integral part of the reinforced concrete wall. And, the airtight walls provide substantial energy-savings as well as sound and wind-resistance and a three- to four-hour fire rating. The standard Arxx forms have exposed plastic webbing on both sides, or one side, so drywall can be easily attached on the interior and a variety of materials on the exterior, such as brick, stucco and siding.

When it comes to style, the Arxx Wallsystem makes beautiful designs easily attainable with more than 25 Arxx form products. "Curves and angles required by vaulted ceilings, bay windows or unique architectural elements can be achieved," said Cook. The design flexibility of the forms combined with the strength and durability of reinforced concrete provides high levels of satisfaction for the architect, builder and homeowner.

The design industry today has a deep concern for the environment and how their designs may impact the earth. Naturally, a concrete home is appealing for its tree-saving value, but another significant benefit of the Arxx Wallsystem is energy savings. In fact, Arxx wallsystems have proven energy savings of up to 50%, verified by regional energy companies. The built-in insulating features of the Arxx wallsystem outperform traditional stick-built construction, especially when combined with other energy-savings measures. The Arxx Wallsystem's expanded polystyrene insulation has an R-22 value, which along with the airtight and temperature stabilizing features of the concrete walls, results in less energy demands throughout the day. A study by Construction Technology Laboratories of Skokie, IL, confirmed that in many cases, a wood-framed wall would have to be brought to an R50 or greater to perform at an equivalent level to an insulated concrete wall.

Arxx Building Products is supporting its growth and customer base with several capital improvements. The company recently opened a 10,700 sq. ft. North American Customer Fulfillment Center in Cobourg, Ontario, which was constructed with the Arxx Wallsystem to also serve as a showcase project. The building shows off three popular finishes: stone veneer, acrylic stucco and spandrel glass. In addition, five Arxx Construction Solutions Sales Centers opened in Charlotte, NC, Denver, CO, and Toronto, Ottawa and Barrie Ontario during 2001. These centers reinforce the Arxx network of distributors; ensuring product is readily available in all markets.

There are more than 400 authorized distributors serving North America and the Caribbean with licensees in Russia and Japan. For a distributor near you, contact Arxx Building Products at 1-800-292-3210 or visit the company's website at www. arxxbuild.com.





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CIRCL 133 ON INQUIRY CARD

TECTUM

ECTUM Performance Products

or more than five decades, the commer-al and institutional design and construc-on industry has depended on the unique coustical panels made by Tectum Inc. henever the need arose for acoustical wall nd ceiling treatment that would also stand ouse, is easy to work and install, provides n attractive finish when left natural or ainted, and is very cost effective in any nterior and many exterior applications. hese Tectum performance products have ood the test of time.

Today, in keeping with current design ends, sophisticated acoustical needs and sulation requirements, Tectum Inc. has eveloped new products using the standard ectum panel in conjunction with other aterials to provide a different look and/or nhanced characteristics.

Along with recent uses of standard Tectum coustical panels, some of these enhanced roducts are pictured here, showing the ractical and imaginative ways architects, esigners, contractors and building owners e specifying their usage in today's public, rivate and educational construction.

With products such as fabric wrapped all panel systems and decor panels, several pes of composite roof deck systems and the abuse resistant Acoustical-Tough™ life-time warranted ceiling panel system, Tectum Inc. offers a broad line of specialty acoustical building products to meet almost any commercial or institutional need.

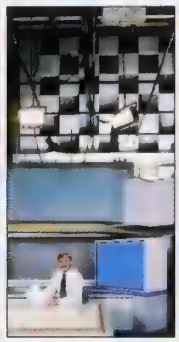
We offer our experience, along with this full line of proven performance products, to help you satisfy your design requirements in a timely and economical manner.

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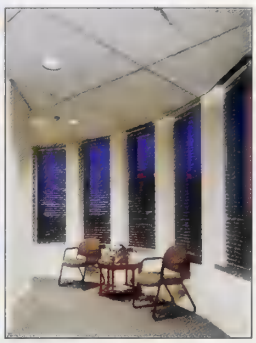
Tectum panels are made from sustainable raw materials. The wood excelsior is from new growth that reaches maturity in 25-30 years. The primary source of magnesium oxide used in the binder is sea water. The silicate used in the secondary binder is made from sand. Tectum Inc. recovers waste magnesium and recycles water during the manufacturing process. The recovered magnesium waste is used in the manufacturing of magnesium sulfate, a primary ingredient in the binder. These recent programs have been successful in reducing the water consumed and reducing the magnesium requirement for the manufacture of magnesium sulfate. Tectum products continue to meet the need of owners, architects and engineers who require green building products.



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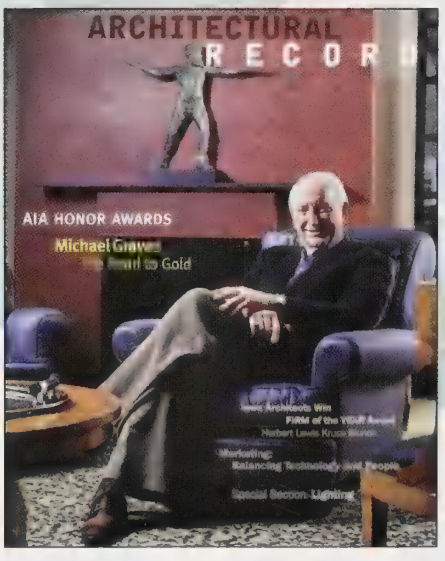
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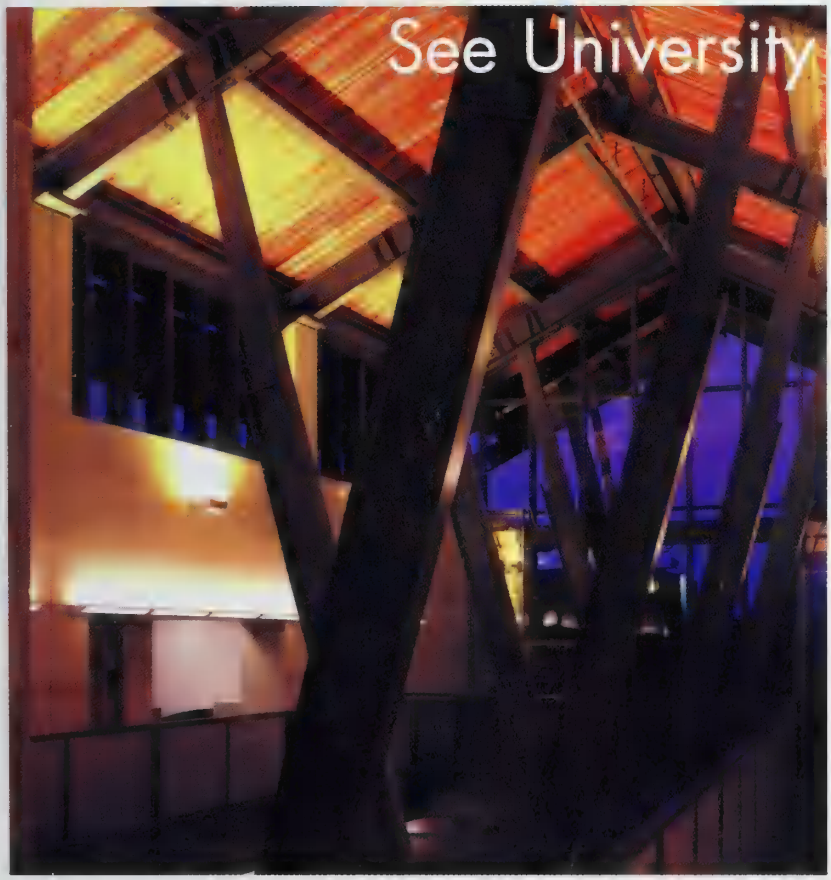
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A simple click transports you to eight distinctive university projects in **December's Expanded Building Types Study** section, found only at Architecturalrecord.com. That's in addition to the university projects featured in this issue of *Record*.

Featured projects include Merryl and Sam Israel Jr. Environmental Sciences Building, Tulane University, William Wilson Associated Architects; McClurg Hall, University of the South, HHPA; Howe Hall, Iowa State University, Brooks Borg Skiles and Ellerbe Becket, Sellinger School of Business & Management, Loyola College, Bohlin Cywinski Jackson; Fontaine Hall Humanities Building, Marist College, Perry Dean Rogers & Partners; Tome New Science Building, Dickinson College, Ellenzweig Associates; National Institute of Education Campus, Nanyang Technical University, Kallmann McKinley & Wood; and Summit Residences and Court, Trinity College, William Rawn Associates. Get the inside track with informative descriptions, plans, specs, photos, and links to key people and products involved in each university project.

Since January 2001, every month's Building Types Study features a wealth of additional projects on the web.

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PAGE NUMBER	READER SERVICE NUMBER	
199		AIA Bookstore
114		AIA Contract Documents
199		AIA eClassroom
43		AIA Financial Highlights
140	*37*	Arakawa Hanging Systems
196		Architectural Record Gift Subscript
20	*12*	Architectural Testing
13		Architecturalrecord.com
197		Architecturalrecord.com
2cov-1	*1*	Armstrong
50	*24*	Artemide
194	*133*	Arxx Building Products Inc (profile)
134		Autodesk (iDesign)
34		Autodesk (piracy)
152	*44*	Avonite
113	*28*	Bentley Systems Inc
178	*57*	Bilco Company, The
174	*56*	BPB Celotex
180	*58*	Bradley Corporation
170	*54*	Bulthaup
168	*53*	C/S Group
140	*38*	CabParts
195	*64*	CAN Precast/Prestressed Concr Inst
16	*10*	Ceco Door Products
156	*46*	CertainTeed
137	*35*	Charles Loomis
23		Compaq Computer Corporation
166	*50*	Continental Bridge
28-29	*13*	Copper Development Association
172	*55*	Door & Hardware Institute
166	*49*	Doug Mockett & Company Inc
5	*4*	DPIC Companies
195		E source
47	*22*	Eagle Windows & Doors
40	*66*	EFCO Corporation
105	*26*	EPIC Metals Corporation
120	*30*	Equitrac
48-49	*23*	Evertile Flooring
133	*34*	Follansbee Steel
25		Forms + Surfaces (Hardware+)
27		Forms + Surfaces (CabForms)
12	*8*	Gardco Lighting
150	*43*	Gary Price Studios
167	*52*	Glass Studios Ltd
30	*14*	GR Plume Company
106	*27*	Hanover Architectural Products
4	*3*	Hewlett-Packard Company
158	*47*	IWP
191	*130*	IWP (profile)
8-9	*6*	Johnson Controls
155	*45*	Julius Blum & Co Inc
189	*63*	Lutron
182		McGraw-Hill Professional
32-33	*16*	Marvin Windows & Doors
146	*41*	Mitsubishi Chemical America Inc
182	*60*	Mortar Net
183	*61*	Móz Designs
122	*31*	National Gypsum Company
31	*15*	NECA/IBEW NLMCC
3cov	*67*	Nemetschek North America
149	*42*	Next Door Company
192	*131*	OpenAire (profile)
10	*7*	Owens Corning
138	*36*	Petersen Aluminum
90	*25*	Pilkington
42	*20*	Revere Copper Products Inc
124-125	*32*	Rixson Specialty Door Controls
167	*51*	Seiho International Inc
18-19	*11*	Sharp
141	*39*	Smith-Midland
193	*132*	Space Cannon Illumination (profile)
38	*18*	Tectum Inc
195	*134*	Tectum Inc (profile)
211	*65*	Texas A&M University
2-3	*3*	TOLI
4cov		USG Corporation
145	*40*	Visa Lighting Corp
126	*33*	Vistawall Architectural Products
44	*21*	VT Industries
36	*17*	Vanceva by Solutia
115-119	*29*	Vinyl Institute, The
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COVERMATE™ is a mobile, floor cover handling and storage system designed to quickly convert a gymnasium by installing a temporary protective floor cover to allow non-athletic use. Handling is even easier with the POWERMATE™ power winder and COVERCLEAN™, a patented brush system that sweeps the cover during take-up. For more information and a video, call 800-387-5808, fax 416-742-6837 or visit www.covermaster.com



Covermaster Inc.

CIRCLE 136 ON INQUIRY CARD

Parallel Design Partnership, Limited

"ellen's brackets," an anodized-aluminum shelving system design-ed by M Ali Tayar, provides an elegant alternative to existing bracket-and-track systems. Canti- levered brackets come in two sizes, for shelves 3/4" or 3/8" thick and 10" deep. Wall-mounted tracks permit 1 1/2" adjustment of wood, glass or plexiglass shelves. For more info phone Parallel Design Tel: 212-989-4959 Fax: 212-989-4977.

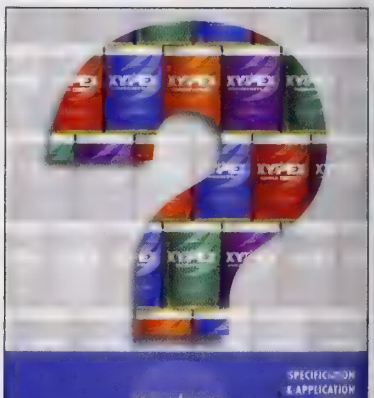


Parallel Design

CIRCLE 137 ON INQUIRY CARD

Concrete Waterproofing by Crystallization

Applied as a slurry coating Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that "plugs" the pores of the structure preventing water seepage. Xypex is ideal for use on the "inside" of wet underground structures.



Xypex Chemical Co.

CIRCLE 138 ON INQUIRY CARD

Architectural Bird Control

Effective, inconspicuous and humane Nixalite stainless steel bird barriers are now available with blunt or sharp points. Nixalite can be installed almost anywhere a bird can land to prevent bird damage. EnduraNet bird netting is a discrete knottless net that simply prevents birds from accessing protected areas. With over 51 years of bird control experience, Nixalite will assist you with any bird control problems. Free samples & catalogs are available. 800-624-1189 or visit www.nixalite.com

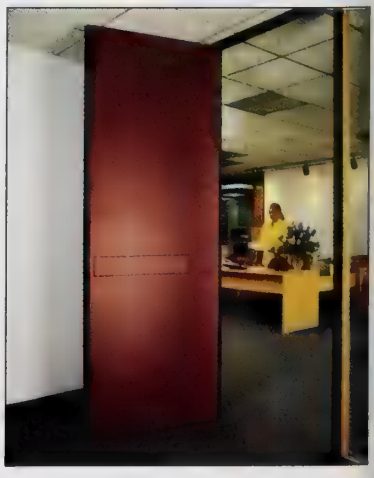


Nixalite® of America Inc.

CIRCLE 139 ON INQUIRY CARD

Applications

The new flush exit device is designed for use on TOTAL DOORS in single, pairs and double egress pairs. Ideal for corridor & elevator lobby applications in all commercial facilities. The exit device allows continuous, uninterrupted sight-lines in corridors when doors are pocketed in the open position. Its quiet operation is ideal anywhere noisy hardware is a problem. TOTAL DOORS can be retrofitted into existing door frames, saving time & expense.



Openings

CIRCLE 140 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
T: (800) 484-4042 ext 3042 / F: (770) 889-9152
E-mail: Ally_Wingate@McGraw-Hill.com

Architectural Luminaries

Space Cannon Illumination proudly introduces our architectural color wash HSR fixture, the Focus, available in 700w and 1200w power sources. This fixture has an onboard computer to control the 3 dichroic tubes, zoom and shutter and includes a kit of 4 lenses for beam shaping up to 90°. 888-705-1028 www.spacecannon.com



Space Cannon

CIRCLE 141 ON INQUIRY CARD

Site Furniture of Distinction

Keystone Ridge Designs, Inc. is the architect's choice for premier site amenities. Offering a full line of steel furnishings, we pride ourselves on exclusive designs and our patented powder coat finish, KEYSHIELD,™ that is unparalleled in the industry. Quality, craftsmanship, and dedication to your creative vision are the hallmarks of Keystone Ridge Designs. For more information please call 800-284-8208 or e-mail: KeystonRdg@aol.com. www.keystoneridgedesigns.com



Keystone Ridge Designs

CIRCLE 142 ON INQUIRY CARD

ADA Insulation Safety Covers

Plumberex Specialty Products, Inc. is the only company that manufactures a complete line of ADA safety covers for commercial & residential applications, meeting all building & fire codes with a -0- smoke rating. The Handy-Shield™ Safety Cover is the one and only ADA safety cover on the market with a "Dual" fastening system to help deter theft! For more information call 800-475-8629, Website: www.plumberex.com or email: plumberex@earthlink.net

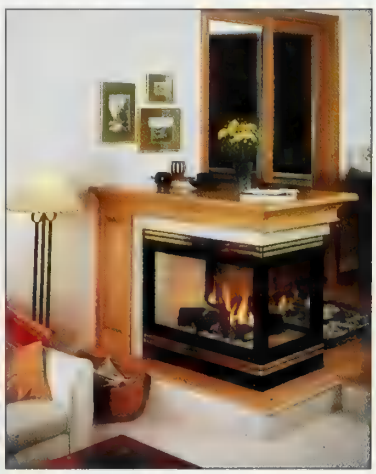


Plumberex Products, Inc.

CIRCLE 143 ON INQUIRY CARD

Three-Sided Fireplace for Unlimited Installations

Heat-N-Glo introduces model PIER-TRC, a three-sided direct vent fireplace that can be terminated vertically or horizontally to accommodate nearly any application. The PIER-TRC is perfect as a room divider, bar, end of counter or a wide variety of creative installation possibilities. As with all Heat-N-Glo fireplaces, the PIER-TRC can be operated by remote control for the ultimate in convenience. Call 888-427-3973.



Heat-N-Glo

CIRCLE 144 ON INQUIRY CARD

Structural Curbs for Proper Support

When a structural curb is installed and fastened to the top of bar joists, as shown, additional structure is not required to support roof-mounted equipment. Curbs can be mounted up to four feet on either side beyond bar joists or supporting members. May also be attached to top of steel deck. Structural curbs from RPI mean leak-free, cost-effective installation. 800-262-6669; Fax 423-892-2107; www.rpicurbs.com

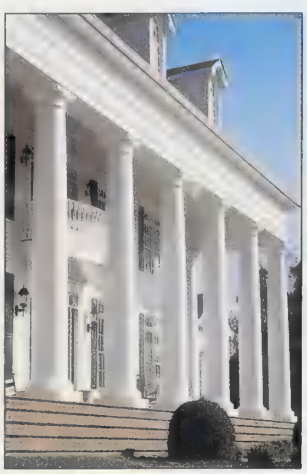


Roof Products, Inc.

CIRCLE 145 ON INQUIRY CARD

Melton Classics: Columns, Balustrades, and Mouldings

Melton Classics architecturally correct columns, balustrades, and architectural details, are the industry standard for quality and design. Columns are available in fiberglass, resin composite, GFRC, GRG and wood. MarbleTex™ balustrades and columns are integrally colored and require no painting. Ask us about our complete line of architectural ornamentation in Melton Stone™ cast stone. Call toll free 800-963-3060 or www.meltonclassics.com



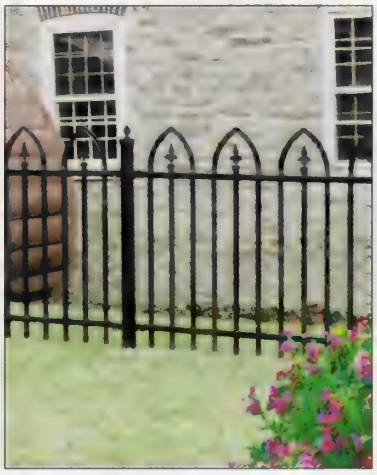
Melton Classics

CIRCLE 146 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
T: (800) 484-4042 ext 3042 / F: (770) 889-9152
E-mail: Ally_Wingate@McGraw-Hill.com

Ornamental Picket Fence with a Purpose

Monumental Iron Works™ is a modular system with the solid look & feel of authentic wrought iron. When assembled, it creates one of the strongest ornamental fence systems on the market. Welding processes are eliminated to avoid red rust problems. MIW utilizes a duplex coating of polyester resin over hot-dip galvanized steel for corrosion protection. Master-Halco, Baltimore, Maryland 21040. 410.676.2744 Email: spec@fenceonline.com Web site: www.fenceonline.com

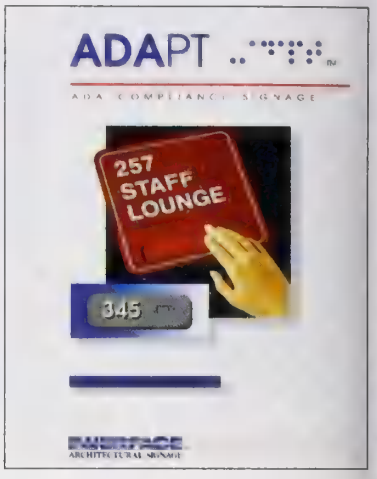


Monumental Iron Works™

CIRCLE 147 ON INQUIRY CARD

ADA Compliance Signage

Innerface makes it easier for you to meet the Americans With Disabilities Act (ADA) signage standards. Innerface offers (1) A variety of compliance signage, (2) National distribution (3) Solid 27 year history and (4) Economical, attractive, and highly functional interior and exterior signage. Innerface also offers signage planning and wayfinding services. For free literature, please call 800-445-4796.

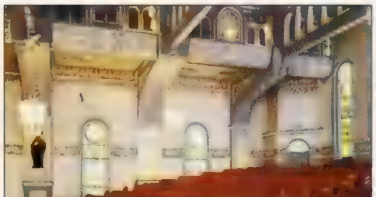


Innerface

CIRCLE 148 ON INQUIRY CARD

The Radius Curved Church Pew

Since 1919, New Holland Church Furniture has supplied churches nationwide with both custom & standard church furniture. Today, New Holland is the only manufacturer of "Radius Curved Pews" in the USA. As a certified member of the Architectural Woodwork Institute (AWI), you can be assured of our consistent high quality. New Holland has just developed all new product catalogs for our Pews and Solid Wood Chairs. New Holland Church Furniture, 313 Prospect St, New Holland, PA 800-220-1465



New Holland

CIRCLE 149 ON INQUIRY CARD

Aluminum Clad Wood Folding System

Nana Wall Systems, Inc. now offers the WA67 Opening Glass Wall System. Maintenance-free extruded aluminum with over 200 color choices on the outside. The warmth of pine, hemlock, fir, oak, or tropical hardwoods on the inside. Widths up to 30" and heights up to 9' 2". In residential applications, completely open large walls for indoor/outdoor living and entertainment areas. In commercial applications, increase business with large inviting openings. Visit www.nanawallsystems. com.



Nana Wall Systems, Inc.

CIRCLE 150 ON INQUIRY CARD

NEW HABA® Single Story Loft

Gressco is the source for contract children's furnishings. The new Time for Children 2001 Catalog includes 60 pages of furniture. We supply simple interactive wall hanging units (no loose pieces) to carpeted platforms, room partitions & beautiful shelving & storage pieces. Our furniture is perfect for that waiting room, church, library or community center you are designing. www.gressco.com OR call 1-800-345-3480 to request a free catalog. Visit Gressco at NEOCON West Booth #2010.

Gressco Ltd.

CIRCLE 151 ON INQUIRY CARD

Clear Vertical Grain Finish Lumber Products

Specify the best! Bear Creek Lumber can provide your customer with top grade vertical grain clear Douglas fir, red cedar, yellow cedar, redwood, hemlock, spruce or pine wood products. All types of sidings, deckings, panelings, timbers/beams, shakes or shingles. Huge variety of tongue and groove patterned stock. Custom milling available. Also in stock: Ipe flooring or decking, architectural stone. FSC lumber, recycled timbers, boards, character logs available. Worldwide delivery. Website: www.bearcreeklumber.com or call (800)597-7191 for prices.

Bear Creek Lumber

CIRCLE 152 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
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E-mail: Ally_Wingate@McGraw-Hill.com

Scoreboards for Sports
NEVCO Scoreboard Company

NEVCO Scoreboard Company manufactures scoreboards for the following sports: basketball, baseball, football, soccer, wrestling, volleyball, swimming, track, hockey and in-line hockey. Our indoor scoreboards are available in incandescent and LED (light emitting diodes). Nevco scoreboards carry a 5 year guarantee and are UL Listed/ CSA Certified. Call 800-851-4040 for information and a free color catalog. We have been manufacturing scoreboards for over 65 years. www.nevcoscoreboards.com Email: nevco@nevcoscoreboards.com

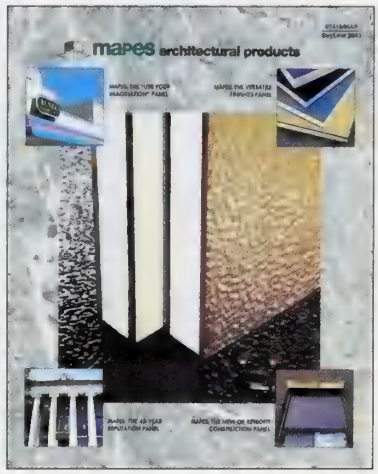


NEVCO Scoreboard Company

CIRCLE 153 ON INQUIRY CARD

Graffiti Resistant Panels
For Infill Applications

Mapes Industries offers a complete line of graffiti resistant panels with a genuine porcelain enamel on aluminum surface. In-house color matching capabilities combined with various component options provide the designer with unlimited design solutions. Kynar, anodized and baked enamel finishes are also available. For more information, contact the factory at www.mapeind.com



Mapes Industries, Inc.

CIRCLE 154 ON INQUIRY CARD

Mini-JOMY®

The Mini-JOMY® is the ideal access & egress solution for residential & light commercial applications. The ladder stands as a column directly on the ground, yet looks like a drainpipe. With the release of a latch, the Mini-JOMY® now folds out into a 20-1/2". wide ladder with slip-resistant rungs. JOMY® Safety Products, Inc. has collapsible ladders, balconies, staircases & counterbalanced stairs. www.jomy.com or call 800-255-2591.

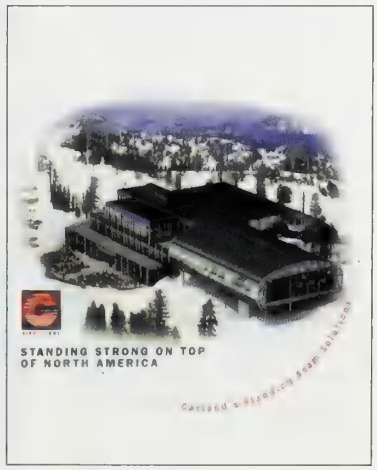


JOMY® Safety Products

CIRCLE 155 ON INQUIRY CARD

The Garland Company, Inc.
www.garlandco.com

Design flexibility, resistance to high wind pressures, weather tight and boldly attractive all describe Garland's exciting line of high performance standing seam roof systems. The Garland Company, inc. is an ISO 9001 certified company offering high-performance systems that meet today's roofing requirements. nationwide roof evaluations, moisture testing, inspections & maintenance programs available. 3800 E. 91st Street, Cleveland, OH 44105 800.741.3157



The Garland Company, Inc.

CIRCLE 156 ON INQUIRY CARD

Building Home Remodeling

Waupaca Elevator has the answer to your Up/Down needs. In business for almost 50 years we have perfected the comfort, convenience, mobility, and safety necessary for the modern home elevator. Look to the 21st Century in home design by installing a Waupaca Elevator in your home today. For further information contact: 1050 So. Grider St., Appleton, WI 54914. Tel: 800-238-8739.



Waupaca Elevator

CIRCLE 157 ON INQUIRY CARD

Radiant Barrier
Low E Coating

LO/MIT-I Radiant Barrier coating is a silver colored, non-thickness dependent, low cost spray applied replacement for foil type barriers. It conforms to ASTM C 1321-98 specification for "Interior Radiation Control Coatings", & is an EPA Energy Star Ally product. Shipped premixed, it is easily applied with standard spray equipment. Solar Energy Corp., 129 Walters Ave., Ewing, NJ 08638-1829. Ph: 609-883-7700, Fx: 609-497-0182, www.solec.org, Email: 71263.413@compuserve.com

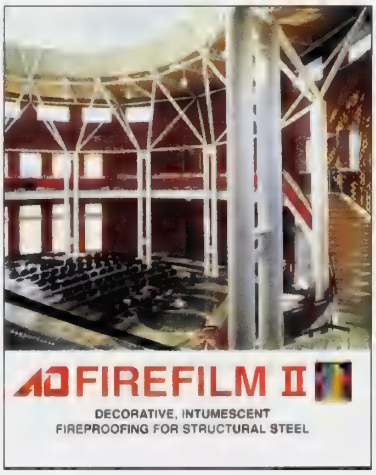


Solar Energy Corporation

CIRCLE 158 ON INQUIRY CARD

Decorative, Thin-Film Intumescent Fireproofing

Improved spray characteristics & ratings up to 3 hours! A/D FIRE-FILM®II permits designers to use the appearance of exposed steel with the steel protected from fire. The product is applied as a thin-film coating 0.4 to 3.3 mm (16 to 130 mils) thick. When exposed to fire it expands to form a meringue-like insulating layer up to 4 in. thick. A/D COLORCOAT topcoat is available in a wide range of colours. Call 800-263-4087 or 416-263-4087. Internet: www.adfire.com See us in Sweets.

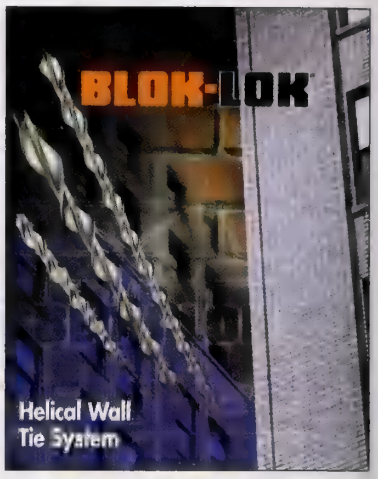


A/D Fire Protection

CIRCLE 159 ON INQUIRY CARD

Stainless Steel Helical Wall Tie System

Blok-Lok, with over 35 years experience in the design and manufacture of masonry reinforcing and tie systems, provides innovative solutions for the repair and stabilization of defective walls. Blok-Lok offers an economical stainless steel helical wall tie that is driven into position through a properly sized pilot hole, providing a positive connection between wythes, while allowing for differential movement. Call 800-561-3026 or visit our website at www.blok-lok.com

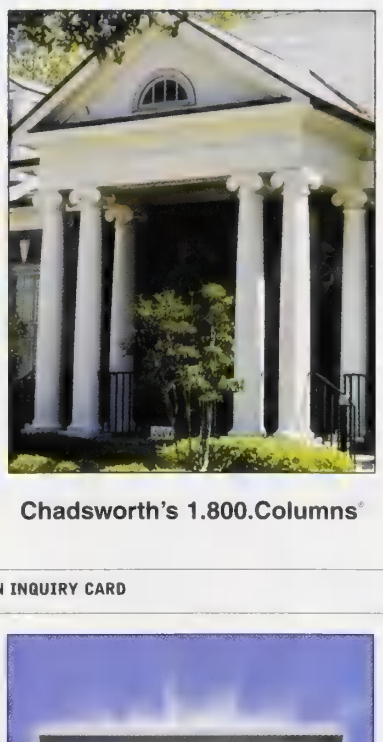


Blok-Lok, Ltd.

CIRCLE 160 ON INQUIRY CARD

Chadsworth's 1.800.Columns® www.columns.com

Columns, pillars, pilasters and posts available in wood, PolyStone™ and fiberglass. Interior,exterior. Variety of sizes and styles.Competitive prices. Job-site delivery. Worldwide shipping. Our award-winning Idea Book features an exciting collection of column projects. Includes Columns Product Portfolio, $20. Columns Product Portfolio $5 (credited to first order). Free flier. 800.486.2118 • Fax 910.763.3191

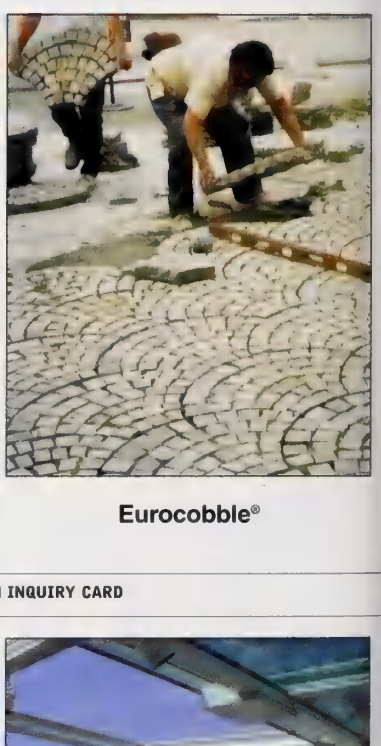


Chadsworth's 1.800.Columns®

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Granite Cobblestone in Modules

An updated catalog features authentic European cobblestone preassembled in modular form. Modules in square, fan, concentric ring, and custom formats arrive at the jobsite ready for quick and easy installation. Pedestrian or vehicular application. Eurocobble® has supplied the design community with traditional and customized paving solutions for over 20 years. Call toll free 877-877-5012 or visit us at www.eurocobble.com.



Eurocobble®

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Insulated Translucence in Glass

Quality buildings can now have all the benefits of insulated translucent glazing PLUS the timeless beauty & durability that comes only from glass. Unlike plastic solutions, SOLERA™ insulated translucent glazing units deliver over 70% light transmittance plus U values of .25 to .14. Curtain wall, sloped, skylights....glass to architectural spec. Call 902-794-2899 or visit www.advancedglazings.com



Advanced Glazings, Ltd.

CIRCLE 163 ON INQUIRY CARD

Retractable Roof Enclosures & Skylights

Custom designed retractable roof panels and operable skylights create year-round settings. At the touch of a button, motorized panels retract to open 50% of the roof area, letting in sunshine and fresh air. Maintenance-free thermally broken aluminum framing. Enclosures ideal for restaurants, patios, pools and atriums. For more information, call 800-267-4877, Email: openaire@openaire.com or visit www.openaire.com



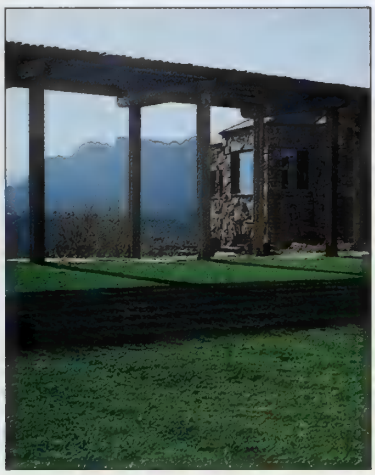
OpenAire Inc.

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Keep It "All" Beautiful

Grasspave2, from Invisible Structures, Inc., is the industry leader in porous paving. A beautiful way to reinforce turf for parking lots, driveways, access roads, and firelanes. Grasspave2 is made from 100% recycled plastic and provides a natural filtration system for automobile and parking-lot runoff. Call 1-800-233-1510 or visit www.invisiblestructures.com.

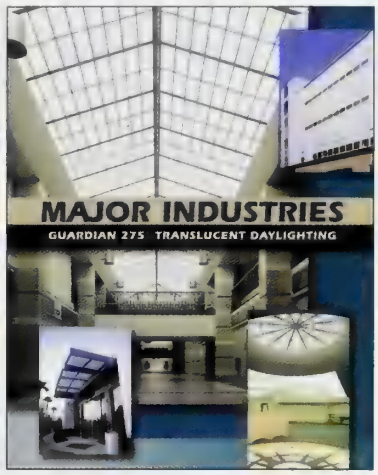


Invisible Structures, Inc.

CIRCLE 165 ON INQUIRY CARD

Skylights and Translucent Daylighting

Major Industries prepares to celebrate its twenty-second year by proudly introducing their newest fact-filled reference on translucent daylighting. This brochure covers the full range of translucent fiberglass insulated sandwich panel systems, with stunning four-color photographs illustrating classic designs as well as newer contemporary applications. If your business involves skylights or wall systems, request literature or visit our newly designed web site: www.majorskylights.com. Toll-free 888-SkyCost, (715) 842-4616 or sales@majorskylights.com

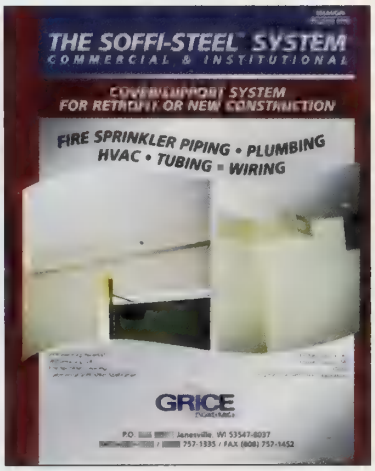


Major Industries, Inc.

CIRCLE 166 ON INQUIRY CARD

Soffi-Steel™ System

For fire sprinkler and other utility retrofit. The Soffi-Steel™ System is available for commercial and institutional applications, a prefabricated, rugged, snap-on soffit with an attractive and quick clean installation. Commercial Soffi-Steel for hospitals, dormitories, apartments, etc. institutional Soffi-Steel is used for jails, and prisons. Custom sizes, shapes and finishes. Contact: Grice Engineering, Inc, Phone: 800-300-3213, Fax: 608-757-1452. Email: gei@mindspring.com Web site: www.soffisteel.com



Grice Engineering, Inc.

CIRCLE 167 ON INQUIRY CARD

From Here to Infinity

That's where VPI Wall Base colors can take you. The selection is limitless. Dip into our designer palette of 41 colors and complement any environment you create. For unique designs, VPI's custom matching service can create virtually any color you want. The possibilities are infinite! VPI also offers over 30 years of experience, so you can rest assured that premium quality is engineered into all VPI Wall Base products. For more information, visit www.vpiflooring.com or call 920-458-4664.



VPI

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Pflow Lifts Safely Move Materials Between Levels

Pflow Vertical Lifts transport materials between two or more levels. Designed for mezzanines, through floor, interior & exterior applications. Capacities from 10 lbs. to 100,000 lbs., vertical heights to over 200', carriage sizes to 30' x 30'. Mechanical, hydraulic and fully automated systems. Guaranteed code approval. Visit Pflow website for complete product information and CSI specs. Call 414-462-8810 Fax: 414-462-2673 www.pflow.com



Pflow Industries, Inc.

CIRCLE 169 ON INQUIRY CARD

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SSS Siedle is a leading manufacturer of "modular visitor entry control security systems." SSS Siedle has achieved excellence in presenting European ergonomically correct style, obtaining award winning designs, offering highest standards for quality & reliability all complemented by a global reputation for superior customer service. SSS Siedle has delivered innovative security solutions for a wide spectrum of the residential, apartment, commercial & industrial markets & has gained the confidence of America's leading architects, engineers & specifiers. 800.874.3353



Siedle Communication Systems

CIRCLE 170 ON INQUIRY CARD

Design Within Reach Modern Furniture In Stock

The premiere source for modern furniture, lighting and accessories. Product assortment includes modern classics by Eames, Nelson, Aalto, and Castiglioni along with contemporary pieces by Lovegrove, Morrison, Starck, and more. The majority of products are in stock for quick shipping. Request a catalog: visit our web site at www.dwr.com or call 800-944-2233.

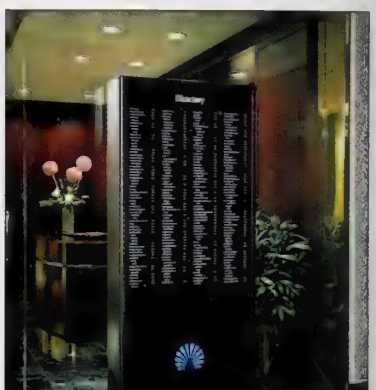


Design Within Reach

CIRCLE 171 ON INQUIRY CARD

Illuminated Directory

APCO's award winning Visulite® directory is the finest in illuminated directories. Text and graphics appear to suspend in the background through the use of tinted solar glass and negative graphics that are evenly illuminated by fluorescent light. Changeable graphics are housed in cartridges designed to prevent light leaks. Visulite® is offered in a variety of finishes with eight attractive door shapes. APCO Graphics, Inc., (404) 688-9000, E-mail: sales@apcosigns.com, Web: www.apcosigns.com

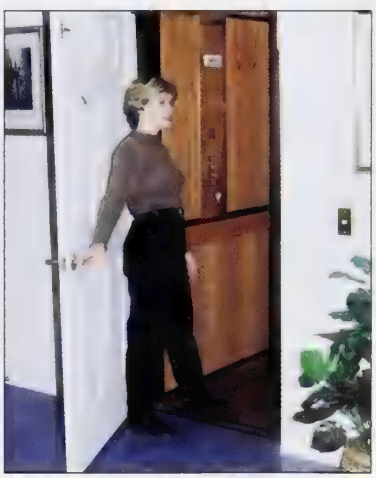


APCO Graphics, Inc.

CIRCLE 172 ON INQUIRY CARD

Concord Kwiklift Elevator

Concord's Kwiklift is a residential elevator designed to provide an economical means of vertical transportation in multilevel homes. Kwiklift's reliable, quiet, smooth operation is ensured by our innovative hydraulic drive system. A variety of finishes & colors allow you to customize its look to meet any job design. Our focus is on quality, reliability, & attention-to-detail. When you choose a Kwiklift Elevator you can feel confident that you are selecting the best residential elevator on the market.



Concord Elevator

CIRCLE 173 ON INQUIRY CARD

Xtreme Recycled Resilient Rubber Flooring

It's Xtreme 100% recycled resilient rubber flooring from Dodge-Regupol. Take your pick from 38 enviro-friendly eye-poppers. And we can custom cut logos or custom blend colors. Color it special with ECOsurfaces! Call toll free 1-877-ECO-SURF (326-7873) or log on to www.regupol.com.

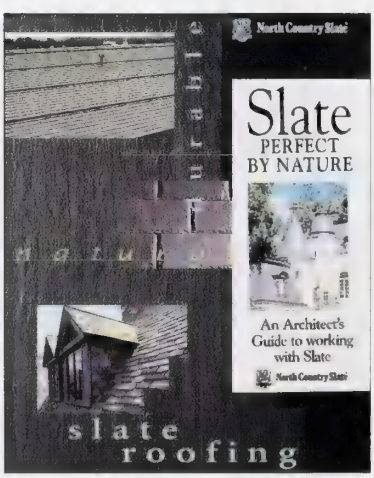


Dodge-Regupol, Inc.

CIRCLE 174 ON INQUIRY CARD

Slate Roofing

Natural North Country Slate®. For enduring character, nothing else compares. No wonder—it's perfected by nature! Free product brochure showcases the wide variety of sizes and colors, and comes with our Architect's Guide to working with this remarkable roofing material.



North Country Slate

CIRCLE 175 ON INQUIRY CARD

Schott Fiber Optic Lighting Catalog

Glass and plastic fiber optic lighting products from Schott are featured in a new full-color catalog. Detailed information on end and side emitting harnesses, light sources, end fittings, and post and paver lamps was developed for retail, conservation, decorative, architectural and landscape lighting applications and OEM custom solutions.



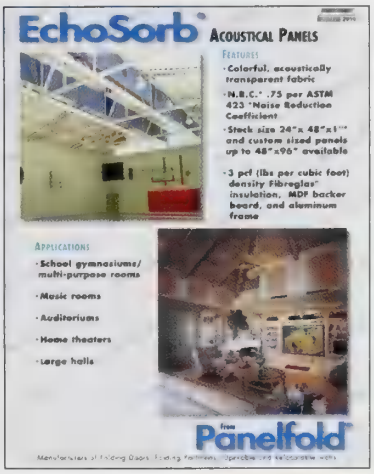
Schott-Fostec, LLC

CIRCLE 176 ON INQUIRY CARD

TO ADVERTISE: Contact Ally Wingate
T: (800) 484-4042 ext 3042 / F: (770) 889-9152
E-mail: Ally_Wingate@McGraw-Hill.com

New EchoSorb® Acoustical Panels

Absorb those annoying speech distorting reverberations in large spaces. Panelfold, Inc., manufacturers of space division products, introduces EchoSorb® .75 NRC acoustical panels. Stock 24" x 48" panels are available in 4 standard colors. Other colors or panel sizes may be specially ordered. Brochures and fabric color selectors available upon request by Fax: 305/688-0185 or E-mail: sales@panelfold.com. Visit our website: www.panelfold.com



Panelfold

CIRCLE 177 ON INQUIRY CARD

UV/FX Scenic Productions

UV/FX wrote the book on Ultra-Violet Visual Effects which are designed, art directed and painted on any surface from floor to ceiling. UV/FX specializes in Dual Image Scenery, Complete Invisible Treatments, Day to Night Effects, 3-D Scenery and more for changing themed walls, backdrops and ceilings. www.uvfx.com. Tel/Fax 310-392-6817.

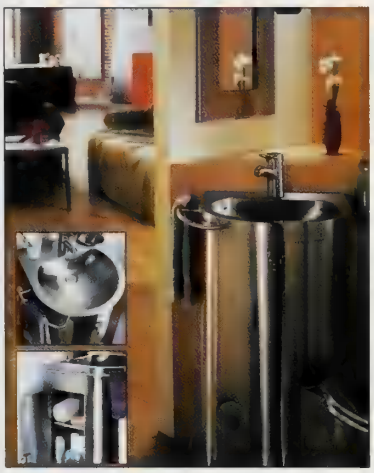


UV/FX

CIRCLE 178 ON INQUIRY CARD

NEO-COMBY

The NEO-COMBY, is a combination toilet and basin fixture constructed of heavy-gauge stainless steel, perfect for all types of bathroom applications. Its features include a vertical storage space with adjustable shelving, an integral towel bar and a built-in bath tissue holder. The exclusive NEO-METRO Collection includes stainless steel washbasins, tubs, toilets, urinals and other fixtures. Call (800) 591-9050 or visit www.neo-metro.com.



Acorn Engineering Co.

CIRCLE 179 ON INQUIRY CARD

Keystone Retaining Wall Systems

Keystone Retaining Wall systems offers irresistible beauty that lasts. The system was developed with simplicity of construction in mind. 6 simple steps are all it takes for start-to-finish efficiency. Because Keystone offers great looks, easy installation, low maintenance, & durability, it delivers a superior return on investment. As the original & proven market leader, it's no wonder the Keystone retaining Wall System is the preferred choice across the US & around the world for commercial, public & residential properties. Web: www.keystonewalls.com



Keystone Retaining Wall

CIRCLE 180 ON INQUIRY CARD

Accessibility Lifts

In the forefront of the accessibility industry is National Wheel-O-Vator, a manufacturer of quality lifts. Our product line includes vertical/inclined platform lifts, LU/LA and residential elevators. The design and customization of our products provides you with a lift to fit almost any application. For more information call 800-968-5438, email archrecord@wheelovator.com or check out our web site at www.wheelovator.com

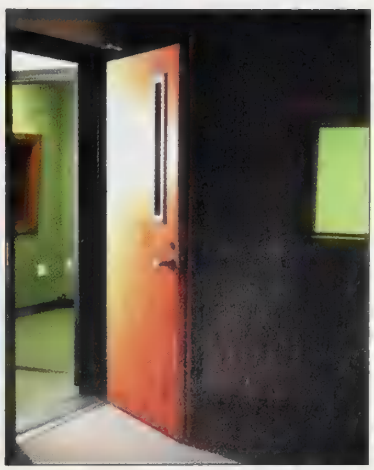


National Wheel-O-Vator

CIRCLE 181 ON INQUIRY CARD

IAC's Noise-Lock® Doors

IAC acoustic door systems have the industry's highest STC ratings. Noise-Lock® doors are fire-rated and available in a variety of finishes. As fully assembled systems, IAC doors are factory guaranteed to specified acoustic performance. Available as bi- and tri-fold and with vision glass. Applications: home theatres, offices, studios, control rooms, conference halls, and auditoria. (718) 931-8000 / email: info@industrialacoustics.com



Industrial Acoustics Co.

CIRCLE 182 ON INQUIRY CARD

5 Reasons You Need The NRCA Building Codes Manual

Comprehensive analysis of model building-code requirements applicable to roof systems in the U.S; Organized list of roofing-specific reference standards required for code compliance; Detailed information about building-code requirements for specific roof system types; Enhancement of public's economic well-being through safe, durable & efficient buildings for living, working & recreation; States' & major cities' building code applicability for all 50 states, Puerto Rico & more than 50 major US cities. (866) ASK-NRCA or (847) 299-9070; www.nrca.net.



NRCA

CIRCLE 183 ON INQUIRY CARD

CHROMIX® Admixtures for Color-Conditioned Concrete

Award winning projects begin with award winning materials. CHROMIX® Admixtures for Color-Conditioned Concrete are colored, water-reducing, set-controlling admixtures for architectural concrete. Coloring concrete integrally, they produce rich hardscapes & precast, tilt-up, or cast-in-place buildings of natural beauty. CHROMIX Admixtures provide permanent, streak-free color conditioning, & increased concrete strength at all ages. 800-800-9900 or info@scofield.com

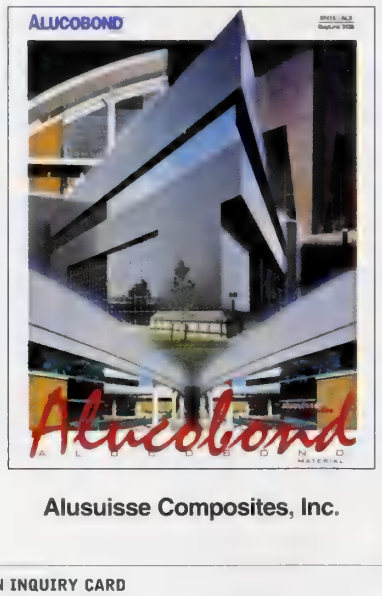


L. M. Scofield Company

CIRCLE 184 ON INQUIRY CARD

New Alucobond® Material Brochure

Totally new Alucobond® Material brochure in dramatic new format illustrates the use of Alucobond Material in a variety of innovative applications and colors. Alucobond Material is the original ACM (aluminum composite material) and has been used on more than 50,000 buildings worldwide. Alucobond Material is always the affordable solution. For more information, call 800-382-6445 or visit www.alusuisse-comp.com

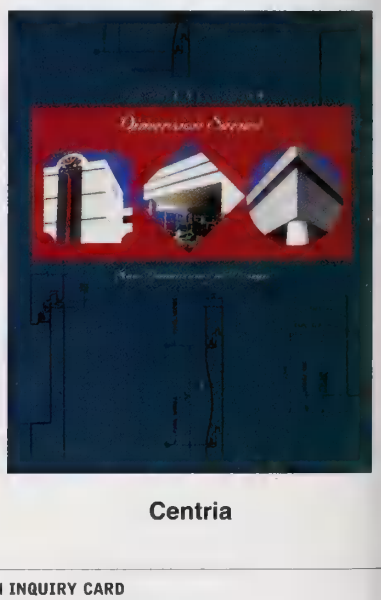


Alusuisse Composites, Inc.

CIRCLE 185 ON INQUIRY CARD

Seminar Highlights Benefits of Foam Core Metal Roofs

The Metal Construction Association is offering a seminar that showcases the many advantages of foam core metal roofs, compared with competitive materials. It's enjoyable, interesting and informative – and you can earn AIA continuing education credits just for attending. Contact Centria at 800-759-7474 or Foam Core Metal Roof at 877-902-ROOF for complete details.



Centria

CIRCLE 186 ON INQUIRY CARD

Ambassador Shake™

Utilizing patented tri-laminate technology, CertainTeed's Celotex Ambassador Shake™ is a super-heavyweight shingle (390 lbs/square) with a stunning three-dimensional appearance that rivals the look of classic wood shakes. Ambassador Shake™ is algae-resistant, carries a UL Class A fire rating, is UL certified to meet stringent ASTM D3462 performance standards and features a lifetime, limited warranty.



CertainTeed

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CertainTeed

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E-mail: Ally_Wingate@McGraw-Hill.com

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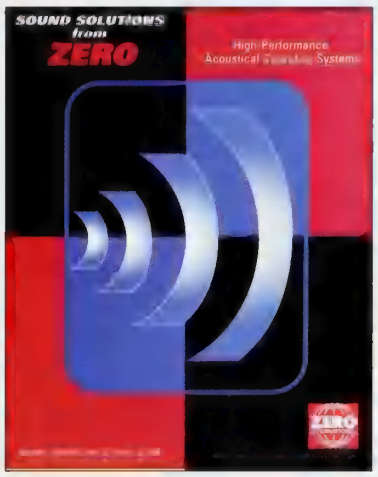


Cherry Tree Design

CIRCLE 189 ON INQUIRY CARD

A Practical Guide To Acoustical Gasketing

Twenty-page brochure covers the basic principles of acoustics to help define and quantifying noise problems; provides a good working knowledge of STC ratings for acoustical door assemblies; and walks you through the necessary steps for practical applications using ZERO's renowned acoustical gasketing. To get your FREE copy: Ph: 1-800-635-5335 Fax: 1-800-851-0000 Website: www.zerointernational.com



Zero International

CIRCLE 190 ON INQUIRY CARD

FRT Wood & Building Codes

New "Application Guide" outlines code-compliant uses of fire retardant treated (FRT) lumber and plywood. Includes International Building Code as well as National, Standard, and Uniform codes. The guide also covers design properties, test standards, identification, and specification. It describes the effective Dricon® brand, which offers termite resistance in addition to fire properties. Call 404-362-3986 or visit www.dricon.com.

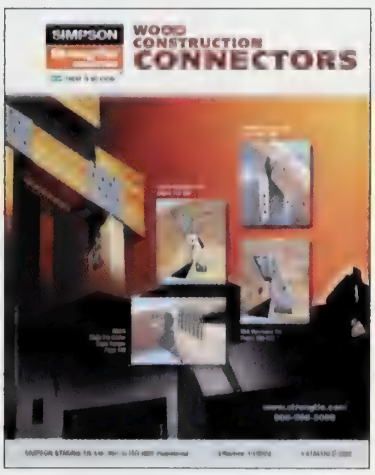


Arch Wood Protection

CIRCLE 191 ON INQUIRY CARD

Essential Reference for Wood Construction

Wood Construction Connectors-2002, catalogs Simpson's connector line, including engineered wood, plated truss and Strong-Wall™ engineered shearwalls. This valuable reference for architects, structural engineers and building officials includes specifications, load charts, application drawings, and code acceptances. Introduced this year are new hurricane ties and a new multi-ply girder truss hanger. Call for a copy: 800-999-5099 www.strongtie.com

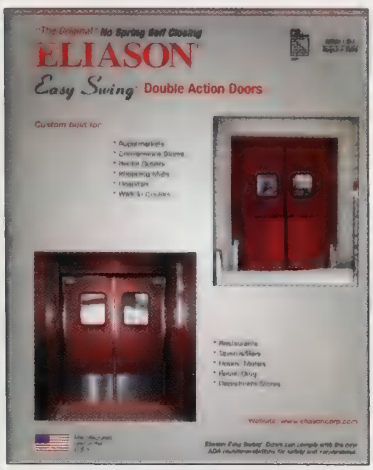


Simpson Strong-Tie

CIRCLE 192 ON INQUIRY CARD

Eliason Easy Swing® Double Action Doors

Eliason, the original & only manufacturer of Easy Swing® Doors, has announced the availability of their new 2002 Price Spec catalog. Doors are color illustrated with complete specifications and prices. Available in a variety of sizes, styles and decor options. Doors are sold direct and the price catalog is sent no charge. Eliason Corporation, P.O. Box 2128, Kalamazoo, MI 49003. Tel: 800-828-3655 Fax: 800-828-3577 Email: doors@eliasoncorp.com Web site: www.eliasoncorp.com

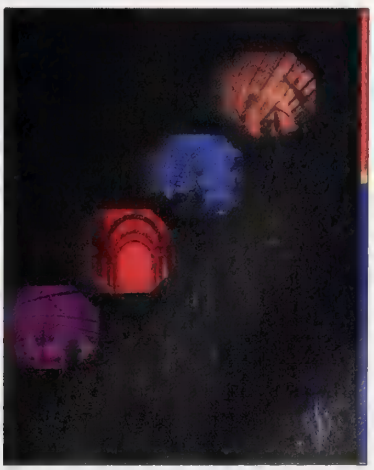


Eliason Corporation

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Custom Glass and Polycarbonate Skylights

For over 75 years Super Sky has been the leading designer, manufacturer and installer of custom glass and aluminum skylights, our unique EDGE® and EDGE MAX® polycarbonate skylight systems and recently introduced Photovoltaic glass systems that generate renewable energy from the sun. Call us at 800-558-0467 or visit our web site at www.supersky.com



Super Sky Products, Inc.

CIRCLE 194 ON INQUIRY CARD

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program/project title: Plastics Finally Get Respect (12.01, page 107)

AIA/CES Credit: This article will earn you one AIA/CES LU hour of health safety welfare credit. (Valid for credit through December 2003)

Directions:
Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 70% is required to earn credit.

1.	a	b	c	d	**6.**	a	b	c	d
2.	a	b	c	d	**7.**	a	b	c	d
3.	a	b	c	d	**8.**	a	b	c	d
4.	a	b	c	d	**9.**	a	b	c	d
5.	a	b	c	d	**10.**	a	b	c	d

Last Name **First Name** **Middle Initial or Name**

Firm Name

Address **City** **State** **Zip**

Tel **Fax** **E-mail**

AIA ID Number_____

Completion date (M/D/Y): _____ / _____ / _____

A. To register for AIA/CES credits:
To register for your AIA/CES Credits, answer the test questions and send the completed form with questions answered to:
University of Oklahoma Continuing Education, AIA/CES, Room B-1, 1700 Asp Avenue, Norman, OK 73072-6400; Fax: 405/325-6965. To respond by e-mail, visit www.architecturalrecord.com and click on Continuing Education. For more information call 800/605-8229.

B. For Certificate of Completion
For a Certificate of Completion, which is required by certain states, answer test questions, fill out form above, enclose check/money order for $10 payable to Architectural Record and mail to: Architectural Record/Continuing Education Certificate, PO Box 682, Hightstown, NJ 08520-0682. Your test will be scored. Those who pass with a score of 70% or higher will receive a certificate of completion.

Material resources used:
Sponsored section: This sponsored section addresses issues concerning the health, safety or welfare of the public.

I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the AIA Continuing Education Guidelines for the reported period.

Signature **Date**

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program Title: Vinyl By Design: Achieving a Successful Building Envelope with Vinyl, Sponsered by The Vinyl Institute, Architectural Record (12/01, page 115)

AIA/CES Credit: This sponsored section will earn you one AIA/CES LU hour of health safety welfare credit. (Valid for credit through December 2003)

Directions:
Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 70% is required to earn credit.

1.	a	b	c	d	**6.**	a	b	c	d
2.	a	b	c	d	**7.**	a	b	c	d
3.	a	b	c	d	**8.**	a	b	c	d
4.	a	b	c	d	**9.**	a	b	c	d
5.	a	b	c	d	**10.**	a	b	c	d

Last Name **First Name** **Middle Initial or Name**

Firm Name

Address **City** **State** **Zip**

Tel **Fax** **E-mail**

AIA ID Number_____

Completion date (M/D/Y): _____ / _____ / _____

A. To register for AIA/CES credits:
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University of Oklahoma Continuing Education, AIA/CES, Room B-1, 1700 Asp Avenue, Norman, OK 73072-6400; Fax: 405/325-6965. To respond by e-mail, visit www.architecturalrecord.com and click on Continuing Education. For more information call 800/605-8229.

B. For Certificate of Completion
For a Certificate of Completion, which is required for certain states, do the following: Answer the test questions, fill out form above, and mail to: Architectural Record/Continuing Education Certificate, PO Box 682, Hightstown, NJ 08520-0682. Your test will be scored. Those who pass with a score of 70% or higher will receive a certificate of completion.

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Ronald L. Skaggs
FAIA, FACHA
Chairman
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Santa Monica, CA. Mail Resume to: Gensler Hiring Committee, 2500 Broadway #300, Santa Monica CA 90404. Please, no phone calls, faxes or emails. EEO/Affirmative Action employer.

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Plan One/Architects is a 20-person, 4-office regional firm serving Wyoming and Idaho, engaged in some of the largest and most diversified projects in the northern Rockies. Plan One's projects include educational, health care, detention and recreational facilities, with costs ranging up to $60 million. We are currently seeking an Architect / Project Manager for our Rock Springs, Wyoming office. Rock Springs is in close proximity to recreational and cultural opportunities in Park City and Salt Lake City, UT, Flaming Gorge, WY, and Steamboat Springs, CO. Professional registration is preferred. 5 years experience, AutoCAD R14/2000 proficiency and the ability to maintain a multiple project workload is required. We offer a professional work environment, competitive salaries and excellent benefits including a generous Merit Bonus Program. See full job description at www.planone.com. FAX resumes to (307) 352-2956 or E-mail to chvanove@wyoming.com.

SENIOR ARCHITECT

Sr. Architect wanted by design firm in NYC. Req'd: Master Architecture +2 yrs. of comp. exp. including structural design, AutoCAD, Excel, Word. Fax resume to D. Czar, Fax: (212) 967-0890.

ARCHITECT

Architectural firm specializing in health care and education seeking the following: Senior architect iwth minimum of ten (10) years experience with full responsibility for large projects and possess organizational and leadership skills. Must be licensable in the State of Michigan. Competitive salary and fringe benefits based on qualifications and experience. Send or fax resume to: Human Resource Manager, Gunn Levine Associates, 726 Lothrop, Detroit, Michigan 48202. Fax (313) 873-8090.

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Under the supervision of a licensed architect, prepare architectural designs and specifications. 40 hour work week; 8 am to 5 pm, competitive salary offered. Requires Bachelor degree in Architecture and 6 months experience in job offered. Education or experience to include use of software listed below and at least 2 design renderings which were made using 2-D and 3-D functions of computer aided design software (must be willing to provide design examples or verification reference). Crystal Lake location. Must have proof of legal authority to work permanently in the U.S. Interested applicants should send resume and cover letter referencing Job #85 to: Roy T. Witherow, SPHR, Director of Human Resources, Legat Architects, Inc., 24 North Chapel Street, Waukegan, IL. 60085.

ARCHITECTURAL DESIGNER

Research & development of new system software; animation tech. specializing in 3-D computer modeling; implementation & training of new tech.; modeling & rendering elements & textures in 3-D; initiation & development of project design; development of client's program; meet with clients, present concepts & receive design approvals; participate in & direct all aspects of project's design; preparation for construction documents. Reqs: Master's in Architecture. Degree must be from NCARB Accredited Program & must include at least 6 credits of CAD coursework + 6 mos. exp. in related occupation as an Intern Architect. Exp. Must include development of 3-D rendering elements & textures utilizing 3-D Autocad. M-F, 8am-5pm; 40+ hrs/wk, $19.07/hr; "Employer Paid Ad"; Send resumes to: MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170; Include Ref. #200929.

EXECUTIVE DIRECTOR
MIDWEST PRESTRESSED ASSOCIATION (MPA)

Key Objective for Position: To educate the design community on the use of precast/prestressed concrete to ensure industry growth. Position Duties: Assist PCI in completing a University curriculum for a precast/prestressed concrete class; Attend PCI National Convention and Committee Days to meet with other regional directors to compare program activities; Update MPA members quarterly on current activities; Attend and Display at Conventions, which agreed upon. (i..e. School Broad Convention, League of Cities Convention, etc.); Conduct numerous box lunches for designers and University classes on the use of precast/prestressed concrete; Join relevant associations to our industry and be active on committee's etc. (i.e. ACI, AIA, CSI, etc.); Develop and maintain a budget for MPA activities; Network with Educators to try to influence them in conducting full quarter courses on precast/prestressed concrete; Network for new ideas or projects and distribute all leads to the association members; Recruit producer and associate members; Bench mark our products market share vs. other similar products to measure our associations success; Report directly to the MPA Broad of directors; Prepare a quarterly newsletter with the assistance from the producing members. Background required for position: Knowledge of our products and services; Organizational skills; Communication skills. Send Resume to: John Saccoman, Moline Concrete, 415 Lilac St., Lyno Lakes, MN 55014, Fax: (651) 786-0229.

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FACULTY POSITIONS

THE UNIVERSITY OF TENNESSEE
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ASSISTANT OR ASSOCIATE PROFESSOR
Tenure-Track Design Faculty Positions

The College of Architecture and Design seeks candidates for one or more full-time tenure track positions in architectural design, at either the Assistant or Associate Professor rank, commencing Fall 2002. Candidates should be qualified to teach architectural design at all levels in both the undergraduate and graduate programs. Preference will be given to individuals with demonstrated excellence and accomplishment in design. Interest in the following areas would meet our current needs and/or strategic priorities within a design-focused curriculum: the scholarship and application of beginning design pedagogy, seasoned experience and accomplished engagement in a reflective professional practice, the emerging field of digital scholarship and its applications, or other areas of compelling interest to the academy, profession, and society. Prior to appointment, applicants should possess a professional degree in architecture, including a graduate degree in either architecture or another related field (i.e., art, landscape architecture, urban design, planning, etc.). Experience in teaching and scholarship is valued. Experience in distinguished practice and professional registration is desirable. All candidates must have the interest and potential to pursue self-defined intellectual objectives through research, scholarship, creative work, and/or practice.

The Design Faculty Search Committee will begin reviewing applications on January 18, 2002. Applications will be accepted until the position is filled. Candidates are asked to submit a letter of interest and objectives, a curriculum vitae, photocopied select examples of design work (non-returnable), and the names of three references to: Jon Coddington, Chair, Design Faculty Search Committee, School of Architecture, The University of Tennessee, 1715 Volunteer Boulevard, Knoxville, TN 37996-2400. Questions can be directed to Jon Coddington, Chair, at 865-974-5265 or email jcodding@utk.edu.

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

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SCHOOL OF ARCHITECTURE
FACULTY POSITIONS OPEN

The University of Texas at Austin School of Architecture invites applicants for two positions at the rank of assistant professor, starting in the fall of 2002. The school is looking for candidates whose strength is design and whose ambition is to reach and teach at the forefront of architectural design as grounded in human experience. Special interest/ expertise in contemporary construction or interior design will be a plus, though not absolutely necessary. Interested individuals should send a letter of interest and self-description, together with a few representations of their work, to Michael Benedikt, Chair, Faculty Search Committee, School of Architecture, The University of Texas at Austin, Austin, Texas 78712, before March 1, 2002. Selected applicants will be asked for more information. Austin is one of America's most vibrant and livable cities, with the University of Texas at Austin—an Equal Opportunity Employer—at its heart. Offering a working environment second to none as well as competitive salaries, the School of Architecture consistently ranks in the top ten in the nation. We seek to make it better yet. For more information, visit www.ar.utexas.edu.

CALIFORNIA COLLEGE OF ARTS AND CRAFT
CHAIR OF THE
DEPARTMENT OF ARCHITECTURE

The California College of Arts and Crafts invites applications for the position of Chair of the Architecture Department, beginning Fall semester of 2002. The Chair is responsible for directing all aspects of the academic

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PENN
UNIVERSITY of PENNSYLVANIA

GRADUATE SCHOOL OF FINE ARTS
GRADUATE GROUP IN HISTORIC PRESERVATION

ASSOCIATE OR FULL PROFESSOR OF ARCHITECTURE

The Graduate Group in Historic Preservation in the Graduate School of Fine Arts of the University of Pennsylvania is seeking applicants for a full-time tenure track position at the rank of Full or Associate Professor of Architecture beginning in the fall of 2002. The position requires the ability to teach graduate courses in historic preservation. Teaching will take the form of required and elective courses, taught as lectures, seminars and studios in at least three of the following areas of specialization: history and theory of historic preservation, documentation methods, building investigation, historic building technology and preservation planning. The candidate should possess a first-hand knowledge of the preservation field through education as well as experience in private and/or public sector work. In addition to demonstrating effectiveness in teaching, applicants must demonstrate a commitment to scholarship through publication and applied research. Professional experience at the international level is highly desirable.

Applicants should respond with a letter of interest, curriculum vitae, examples of research and scholarship (published and unpublished), and the names and contact information for three professional and academic references. Applications will be reviewed beginning on December 1, 2001 and will continue until the position is filled.

Applications, nominations, and inquiries should be sent to:

Frank Matero, Chair, Search Committee
Graduate Program in Historic Preservation
Graduate School of Fine Arts
115 Meyerson Hall, University of Pennsylvania
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and administrative operations for the Architecture Department. Specific responsibilities include: instrumental participation in the continued development and implementation of a coherent curriculum; the coordination of all courses in the program with faculty coordinators; playing a responsible role in faculty development, complete compliance with NAAB accreditation standards; the development of collaborative venues with other divisions of the College; instruction of at least one Architecture course; and fundraising. Applications should include a curriculum vitae, a portfolio, three professional and academic references, and a letter of interest that addresses possible pedagogical and curricular exploration. For a full position description, see our website: www.ccac-art.edu. Closing date: February 15, 2002. Applications should be forwarded to: CCAC, HR#1477, 5212 Broadway, Oakland CA 94618, fax:: 510-594-3681 e-mail: mhopper@ccac-art.edu EOE

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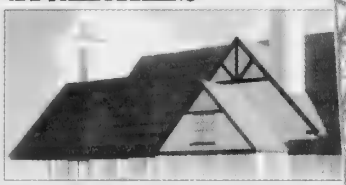
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One on one with Olive 1:1 product designer Ayse Birsel

Interviewed by Josephine Minutillo

From tabletop to office to bathroom, Ayse Birsel has already tackled a variety of design challenges in her young career. A native of Turkey, Birsel is the recipient of numerous design awards, including the Brooklyn Museum of Art/MODERNISM Young Designer Award for 2001. A design principal of the Olive 1:1 firm in New York, Birsel has collaborated with such companies as Knoll, Authentics, Toto, Vitra, and, most notably, Herman Miller, where her Resolve Office System helped redefine the workplace and was the most successful product launch in the company's history.

Q: *What aspect of design interests you the most?* I like to look beyond styling and approach design systemically. Style and form actually come into play very late in the game for me. Once you know what you are trying to accomplish and why, the form falls into place. Looking at the surroundings helps define a product, as well. For example, the desks I designed for Herman Miller Red (see page 176 in Product Reports) are, at their simplest, just tables, but even though they are nonsystemic products, we approached their design systemically, thinking of it as a complete environment and taking into account places for trash or a telephone or a place to store your backpack. There is even a display for photographs of your friends and family.

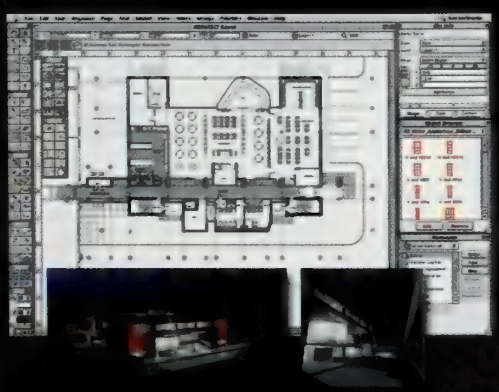
What projects are you currently working on? I believe in working with a few good clients at a time. I'm continuing to work with Herman Miller on another office system, but one that this time goes beyond the individual to deal with issues such as information display. I'm also working on something that is completely outside the realm of office furniture.

Are there any designers who inspire you? Isamu Noguchi is a big inspiration for me. I look at his work at the start of almost every project and it gives me hope about what can be done. I connect with his work, perhaps because it represents a meeting point of East and West. His mastery of materials and three dimensions is something I especially admire. In my work, I try to tell people certain things three-dimensionally that they can understand intuitively. I try to be honest and straightforward without being literal or cartoonish.

Has anything changed for you now as far as working in New York City after the events of September 11? Well, for one, it made me realize how much I owe to New York; it made me fall in love with the city all over again. Everything that I consider a success about my work or about who I am today— all of it is more or less coming from New York. Work has become a luxury in the sense that I've realized what a wonderful experience it is to be creating or imagining something. I'm lucky to be here and to be a designer. ***Photograph by Olive 1:1***

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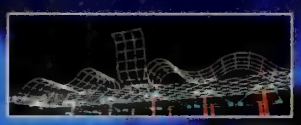
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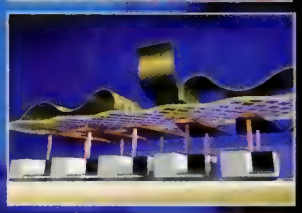
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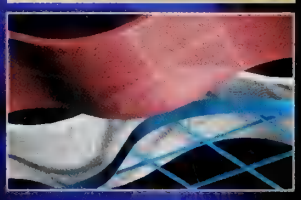
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